

BULLETIN
OF THE
CHICAGO ACADEMY OF SCIENCE

A PRELIMINARY STUDY OF
THE PSELAPHIDAE (COLEOPTERA) OF MEXICO

BY
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INTRODUCTION

The occasion for this paper is an analysis of a collection made during the summer of 1941 by Dr. Charles Seevers of the Central Y.M.C.A. College, Chicago, and Henry Dybas of the Field Museum of Natural History. This material was received too late for incorporation in a recent report (Park, 1942). All types described subsequently are in the author's collection, and he takes this opportunity of thanking these gentlemen for their gift.

Twenty-four species and varieties are represented in the material at hand. Of these eighteen are new, including two new genera. This brings to 130 the number of species and varieties of Mexican pselaphids. It becomes increasingly clear that pselaphids of Mexico and Guatemala

form a homogeneous faunal unit, and further that the number known is but a small portion of the total number of species within this area. These and other zoögeographic matters are discussed following descriptions of new species.

Of notable interest are two genera (*Rhexidius* and *Megarafonus*) known hitherto only from the Nearctic Region; two genera (*Euplectus* and *Melba*) well known from both the Nearctic and Neotropical Regions, but not known hitherto from Mexico; and five species which were described some fifty years ago by Sharp and Raffray but which have not been recorded since their description.

Considering the paucity of information on the neotropical pselaphid fauna, even this small addition is welcome. In addition to the new species and their integration, expanded and improved keys are given for *Scalenarthrus* (Group II) and *Arthmius* (Group III). The genera *Melba* and *Buris* are emended on the basis of new data.

FARONINI

Megarafonus fundus new species

Antennae 0.87 mm.; head 0.27x0.37 mm. pronotum 0.33x0.41 mm.; elytra 0.60x0.67 mm.; abdomen 0.80x0.70 mm.; total length 2.0 mm.

Flattened, subcuneiform. Integuments polished, punctate, bearing moderately long (0.067 mm.), rather coarse, abundant, recumbent setae; color chocolate brown with legs and distal antennomeres light brown, maxillary palpi yellow and apical margins of tergites sharply contrasting yellowish-brown.

Tempora parallel for apical two-fifths and rounded into neck for basal three-fifths, one-third longer than eyes, with their posterior margins covered by frosted pubescence which, in turn, is overlaid by a prominent temporal beard. Epicranium with a pair of large, circular, nude, free vertexal foveae on a line with the posterior ocular margins and mutually nearer than either to an eye; a long frontal fovea which is abrupt, filled with frosted pubescence, sides nearly parallel, rounded at both ends, cutting the interantennal frontal line apically, and extending posteriorly nearly to vertexal foveae. Ventral surface of head gibbous, with a deep fovea at base of each cardo. Cervical sulcus filled with frosted pubescence, continuous with that of tempora. Mentum large, flat, subquadrate, flanked each side by the conspicuous, triangular cardo. Maxillary palpi conspicuously four-segmented, first segment relatively large for pselaphids, oboval, nearly as long as second; second obconical, wider than first; third transverse, half as long as second and about as wide, internal face shorter to give a trapezoidal outline; fourth segment relatively very large, subobconical with narrowed basal and

broadly rounded apical face, distinctly setose and bearing an apical palpal cone.

Eleven-segmented antennae articulated under small tubercles ; segment I twice as long as second, twice as long as wide ; II oval, as wide as

apical face of first; III very small, obconical, distinctly shorter and

narrower than any other segment ; IV to VIII subequally long, suboval, just perceptibly increasing in width and setosity; IX and X slightly longer and wider than eighth, more pubescent, slightly longer than wide ; XI as wide as tenth, nearly twice as long as wide, basal portion quadrate with rounded base, apical portion more pubescent and subconical. Antennae in general staphylinoid, with ill-defined club ; differing from genotype, *ventralis*, where eleventh segment is only slightly longer than wide.

Pronotum transverse, widest in median fifth, evenly convergent from here to rounded apical margin but sinuately parallel to basal margin ; disc simply convex ; basal third with a large, median, transversely ovate depression which has a deep, circular, nude fovea in center ; a deep, circular, nude fovea each side at latero-basal angle of central depression an elongate, pyriform sulcation each side of pronotum in basal third, extending to basal margin. Thus the basal third of pronotum has five clearly defined excavations.

Elytra long, nearly twice as long as pronotum (in contrast to *ventralis* with elytra only slightly longer than pronotum) ; sparsely and irregularly set with rough punctures ; humeri distinct but obtuse ; flanks simple ; each elytron with a deep, medianly subfoveate, fusiform discal impression for basal half, and an entire, coarsely punctate sutural stria. No basal foveae, but four very large punctures in a semicircle at base of sutural stria.

Abdomen with second, third and fourth tergites slightly wider than elytra ; lateral margins of abdomen very strongly formed, heavily pubescent and staphylinoid ; first tergite covered by two parallel bands of short, dense, squamoid pubescence between inner lateral margins ; five visible tergites in a length ratio of 2/3/3/4/2 with fourth partially, and fifth wholly, invisible from above ; fifth tergite triangular.

Seven visible sternites in a length ratio of 1/1.5/1.5/1/1/1.5/2.5 with the sixth deeply, triangularly cleft medianly to hold the ovate-triangular seventh; seventh with a small fovea at apical center.

All coxae conical and slightly separated ; all legs brachysceline ; posterior femora distinctly sinuate. Tarsi oxyteline, first two tarsomeres relatively very short ; third very long, bearing a pair of equal, arcuate, long tarsal claws. Metasternum evenly tumid.

Described upon one male, the type, from Las Vigas, Veracruz on June 30, 1941 at 5500 feet elevation, by Henry Dybas. This is an

important addition to the neotropical fauna. The genus is distinct from the three Chilean faronines in having neither lateral nor median longitudinal pronotal sulci. Previously the neotropics held only three monotypic genera, all of Chile, and *Megarafonus* is very distantly allied to these, approaching *Golasa* more than the other two. *Fundus*, then, becomes the fourth known neotropical faronine species. The genus was known previously only from its genotype, *Megarafonus ventralis* Casey of Portland, Oregon and *fundus* extends the range, discontinuously, some 2100 miles southward. Finally, this is the twentieth genus of pselaphids known to hold both nearctic and neotropical components.

EUPLECTINI

Mexiplectus new genus

Distinguishing criteria : (1) widely separated, eleven-segmented antennae ; (2) ventral surface of head simply flattened, lacking either a median longitudinal carina or sulcus, and provided with simple non-capitulate setae ; (3) prosternum bisected by a median, high, laminoid carina from between coxal cavities to apical margin ; (4) each elytron with a deep, entire, sulcoid sutural stria; with four basal foveae ; with an entire longitudinal carina and a subhumeral fovea on elytral flank ; (5) legs brachysceline ; (6) tarsi three-segmented, first segment small, last two relatively long, not bilobed ; (7) mentum normally small, not covering mouth and mouth-parts.

Genotype described as follows:

Mexiplectus emersoni new species

Head 0.17 x 0.23 mm. ; pronotum 0.2 x 0.23 mm.; elytra 0.28 x 0.37 mm. ; abdomen 0.33 x 0.28 mm.; total length 0.98 mm.

Integument light yellowish-brown with darker elytra and lighter palpi ; lightly punctulate save elytra which are sparsely, distinctly punctate ; pubescence opaque white, abundant and prostrate.

Head with long subangulate tempora twice as long as eyes ; eyes very small (0.033 mm. diameter) , of about 20 small facets, the eye nearly circular in lateral view ; occiput medianly, triangularly depressed, the depression bisected by a short longitudinal carina of cervicum ; vertex medianly convex, with a pair of very large nude foveae (0.033 mm. diameter) , one on each side of the median vault ; vertexal foveae connected by a long U-shaped sulcus which extends to frontal line ; front, between small, distant, flat antennal tubercles, simple. Ventral surface of head simple, flattened, with apically-directed, noncapitulate setae. Maxillary palpi four-segmented, first minute, distinct, obconical ; second obconical, twice as long and apically twice as wide as first ; third shorter,

slightly wider than second, external face rounded, internal face angulate ; fourth twice as wide as third and longer than preceding three united, subconical with rounded-oblique basal face and gradually narrowing apex, bearing a palpal cone.

Antennae eleven-segmented, normal ; segment I quadrate from above ; II ovate, as long as first but narrower ; III-VI subequal, third obconical, others moniliform, all smaller than second ; VII and VIII as long as sixth, slightly transverse ; club of last three, IX and X transverse, increasing in width and length, subtrapezoidal, XI subovate, with truncate base, as long as preceding four united.

Pronotum with sides obliquely convergent in apical sixth, subparallel for median three-sixths, abruptly narrowed and then subparallel basad of this angulation for basal two-sixths. Disc apparently simple, but with oblique light a faint longitudinal depression just discernible. A lateral fovea, visible from above, each side, just basad and mesiad of marginal angulation noted, these foveae connected by a deeply biarcuate sulcus ; a strong, short carina bisecting basal margin and extending to biarcuate sulcus.

Prosternum as noted in generic diagnosis, the carina blackened and showing up against the yellow prosternal integument (Pl. I, 11) .

Elytra with obtuse humeri ; each elytron as in generic diagnosis.

Abdomen with five visible tergites in a median length ratio of 1.5/1.2/1/1/1 with first three strongly margined ; first with a pair of short basal carinae separated by one-third the discal width ; fifth rounded-triangular.

Six visible sternites in a median length ratio of 1/1.5/.8/.6/.5/.7 with the last medianly depressed and apically produced.

Anterior coxae conical, middle ovoidal, posterior conical ; all coxae subcontiguous. Legs brachysceline and unmodified. Tarsi three-segmented, first minute, next two relatively long, the third slightly shorter and narrower, bearing a long, arcuate claw. Metasternum convex, with a small median depression at apex ; paired sternal foveae II, IV and V conspicuous.

Described upon one female, the type, from Huichihuyan,* San Luis Potosi on June 18, 1941, by Henry Dybas and named in honor of Professor Alfred Emerson, who has provided me with many an interesting pselaphid from the nests of neotropical termites.

* Comparative study of numerous maps, books and conversation with people has resulted in lack of agreement as to the correct spelling of this locality: Huichihuacan, Huichihuayan, Huichihuyan, Huechehuacan.

Rhexius sharpi **new species**

Head 0.23 x 0.33 mm.; pronotum 0.33 x 0.33 mm.; elytra 0.40 x 0.53 mm. ; abdomen 0.43 x 0.43 mm. ; total length 1.39 mm.

Integument shining, light reddish-brown with short, sparse pubescence.

Head with broadly concave occiput ; tempora slightly longer than eyes ; eyes relatively small ; vertex transversely vaulted above eyes, and medianly crossed by a weak longitudinal carina extending from occiput to frontal excavation ; vertexal foveae small, poorly developed, on a line passing through apical eye margins, each fovea connected with frontal excavation by an oblique sulcus ; front excavated between antennal tubercles ; surface of epicranium granulate save for median area of front and of vertex. Ventral surface of head with each genal area gently tumid, these areas separated by a longitudinal depression which is medianly deeply foveate. Maxillary palpi as for genus.

Antennae eleven-segmented, strongly geniculate segment I as long as second to ninth inclusive and not quite half the width of eleventh ; II as wide as first, asymmetrically ovate ; III-VIII short, gradually wider, eighth nearly as wide as second ; club well formed of last three, IX and X asymmetrically trapezoidal, with their ventral faces narrowed to form a subdentate profile, slightly increasing in width, much wider than eighth ; XI slightly longer than wide, slightly more than twice the width of first, as long as preceding four segments united, apex asymmetrically triangular in outline.

Pronotum sparsely, minutely granulate. Apical lobe pentagonal, twice as wide as long. Basal lobe with lateral margins minutely crenulate and in addition with three teeth, these teeth increasing in size basally to largest tooth at basal third just apical of lateral fovea. Lateral fovea each side connected by an irregular sulcus ; integument between transverse sulcus and basal margin densely granulate-punctate. Disc bisected by a longitudinal sulcus, from transverse sulcus to near the apical margin of apical lobe ; this longitudinal sulcus in two steps, a wide glabrous ventral step and a very narrow dorsal step, so that the sulcus appears to have a double wall.

Prothorax and head appear to be coadapted. The apical pronotal lobe fits into the occipital concavity; each genal convexity fits into a concavity of the prosternum and these concavities are separated by a longitudinal tumulus which fits into the gular sulcation. If the species letisimulates, this ventral organization would aid materially in contracting the body and reducing the exposed area.

Elytra with tumid, obtuse humeri ; each elytron with an entire sutural stria, four large basal foveae, no discal impressions, flank with a longitudinal carina and a subhumeral fovea.

Abdomen with five visible tergites in a length ratio of 2.2/1.8/1.2/1.8/1.2 with first four strongly margined.

Six visible sternites in a length ratio of 1/1.5/1/1/.5/1 with last sharply depressed in median third of apical margin.

Metasternum convex, apically depressed. Anterior femora each with a high laminoid tubercle, one-eighth of femoral length, placed obliquely on antero-ventral face at apical fourth. Tarsi as for genus.

Described on one male, the type, from Tamazunchale, San Luis Potosi collected at light on the night of August 6, 1941 by Henry Dybas. I have named this new species for David Sharp, whose account of Central American Pselaphidae in 1887 was the first faunal paper on neotropical beetles of this family. The species is very distinct from others of the genus. The relative size and proportions of the first antennomere, relative lengths of the first three tergites and proportions of the apical pronotal lobe in combination separate *sharpi* from the neotropical species. The pubescence, subequal width of head and pronotum, in connection with antennal proportions separate *sharpi* from the nearctic species. In addition it has numerous structural features not reported for other species of the genus. Finally, it is the first species of *Rhexius* known between the United States and Panama.

Rhexidius gerhardi new species

Head 0.20 x 0.32 mm.; pronotum 0.33 x 0.33 mm. elytra 0.47 x 0.53 mm. ; abdomen 0.33 x 0.47 mm. ; total length 1.3 mm.

Color pattern distinctive, dark chocolate-brown with all coxae, tibiae and last sternite sharply paler, and with yellow palpi. Shining; pubescence moderately abundant, short and decumbent ; integument granulate as in *granulosus* and *asperulus*.

Head with eyes longer than tempora but not very convex, so that the lateral cephalic outline is evenly convex to posterior temporal angle ; occiput and vertex medianly sulcate ; a large vertexal fovea back of each antennal tubercle, on a line through eye centers, these foveae connected by an ogival sulcus ; front between antennal tubercles strongly elevated, following the ogival sulcus. Ventral head surface between eyes flattened, medianly sulcoid and densely setose ; these setae are long, prostrate, white, apically directed and their tips minutely enlarged to form oval capitulations so typical of the genus. Maxillary palpi as for genus.

Antennae eleven-segmented, simple ; segment I oblong, as long as next two united ; II suboval, slightly narrower ; III-VIII much smaller, moniliform ; distinct club of last three, IX and X subequal and trapezoidal ; XI as long as preceding four united, widest medianly, where it is wider than tenth, subpentagonal in outline.

Pronotum with dorsal outline of *canaliculatus* but differing from all species of genus in lateral margins. These margins are uniformly so coarsely crenulate as to give the appearance of being sudentate, there being ten to twelve minute tuberculations on each side. A large lateral fovea each side at basal third, well within margin, connected by a transverse sulcus. Disc bisected by a deep sulcus from basal margin to within one-fifth of the apical margin.

Elytra with slightly raised, obtuse humeri. Each elytron with an entire sutural stria, four basal foveae and flank with a longitudinal carina and a subhumeral fovea.

Abdomen with five visible tergites in a length ratio of 1.5/1.5/1.5

the basal median area is depressed, and arising from this concave excavation is a conical tubercle, which has a densely setose apex ; the apex of the tubercle lies flush with the posterior margin of the third tergite. Seven sternites in a length ratio of .7/1.5/1/.5/.4/.7/.5 with first five convex, sixth suddenly flat, semilunar, partially enclosing the small, transversely ovate seventh.

Sternal foveae IV very large, transversely ovate ; metasternum tumid, medianly depressed. Anterior legs abnormal: trochanter bearing an aciculate spine on ventral face ; femur with anterior face produced near apical end into a carinoid ridge, one-third of femoral length ; tibia slightly sinuate. Tarsi as for genus.

Described on one male, the type, from Las Vigas, Veracruz taken by Charles SeEVERS with ants, which are now being determined, on June 30, 1941. Named for my friend, William J. Gerhard of the Field Museum, this distinctive species has no close allies. It is the first *Rhexidius* to be recorded from the neotropics, and is the twenty-first genus of pselaphids known to contain both nearctic and neotropical components. The closest neotropical genera (*Eurhexius*, *Rhexinia*, *Aporhexius*) have six sternites in both sexes.

Thesium paraobscurus new species

Head 0.19 x 0.28 mm. ; pronotum 0.23 x 0.30 mm. ; elytra 0.37 x 0.51 mm.; abdomen 0.50 x 0.43 mm.; total length 1.29 mm.

Shining reddish-brown, punctulate, with sparse appressed pubescence.

Head trapezoidal, with prominent eyes nearly three times as long as tempora, which are short and oblique ; a pair of pubescent vertexal foveae on a line through anterior third of eyes, connected by oblique sulci to a large subtrapezoidal frontal excavation, the latter bounded laterally by prominent antennal tubercles and anteriorly by the prominent frontal margin ; occiput elevated ; cervicum longitudinally medianly carinate ; ventral surface of head medianly longitudinally sulcoid, with two small

gular foveae at extreme base. Maxillary palpi as in *barrocoloradoensis*.

Antennae eleven-segmented, distant, segment I actually oblong but dorsal face, apical of articulation to front, quadrate, this segment strongly flattened dorsoventrally to give a novel profile ; II subovate with strong basal articular peduncle, distinctly narrower than first but only slightly shorter than quadrate portion noted ; III-VII moniliform to transverse-moniliform ; VIII-X transverse-trapezoidal, increasing in length and width ; XI typical of genus, not quite as long as four preceding united, wider than first.

Pronotum with lateral margins with eight minute, aciculate teeth which gave a coarsely crenulate outline ; disc with a large isolated, regularly elongate-oval fovea ; a pubescent lateral fovea each side and a deep nude median fovea, these three at basal third and connected by a transverse sulcus; this sulcus strongly interrupted each side, midway between median and lateral fovea, by a longitudinal caring ; basal margin bifoveate each side ; basal bead medianly extended to form a longitudinal carina.

Elytra and prosternum as for genus.

Abdomen strongly margined ; five tergites visible, the first four progressively slightly longer, with the fifth shorter, as long as first and transversely triangular. Six simple sternites in a length ratio of 1.3/2/1.5/1/.7/1.8.

Legs simple ; tarsi and coxae as for genus. Metasternum with sternal foveae IV and VI large, the latter with an obogival platform between them, this platform elevated above surrounding integument for basal third ; posterior two-thirds of metasternum medianly slightly depressed.

Described on one female, the type, from Tezonapa, Veracruz taken by Henry Dybas on August 8, 1941. This species runs to *obscurus* (Sharp) from Guatemala in previous keys and, when the type of the latter can be seen, this new species may be a variation of Sharp's species. On available information *paraobscurus* is distinct enough to warrant full specific status. Thus *obscurus* (Sharp) is figured as having tempora as long as the eyes, differently formed pronotal margins and an entirely different pronotal discal fovea. The new species has the crenulated pronotal margins more dentate than any species known to me in this genus.

Euplectus guatemalensis Sharp

This species was described in 1887 on a single, doubtfully female, specimen from Dueñas, Guatemala. It has not been reported since. I have five males and three females which I believe to be of this species. This is the first instance of the genus *Euplectus* being recorded from Mexico. They were collected by Henry Dybas on June 20, 1941 from Huichihuyan, San Louis Potosi.

Since Sharp's description is very incomplete, a few details of this Mexican sample are not out of place. The size range is considerable, the beetles varying from 1.38 to 1.42 mm. in length. Both sexes have shining, reddish-brown integuments and the punctulation is vestigial ; in both sexes the metasternum is medianly longitudinally impressed, pronotal disc with a strongly developed median longitudinal sulcus, elytron with three large basal foveae and the first *three* tergites are transversely excavated at base in middle third, each excavation bounded laterally by basal carinae.

The female has six unmodified sternites in a median length ratio of 1.5/2/1.4/1.3/1.2/1.6 with the last transversely rounded-triangular.

The male has seven sternites in a median length ratio of 1.5/1.5/1.3/1.2/1/0.5/2 ; fifth sternite deeply excavated in median half of width for basal half of length, the excavation hemiovate with the wall at each side elevated in a tumulus, and the apical wall slightly biarcuate, and an ovate fovea near apical margin on each side ; sixth sternite with a transverse tubercle at middle of basal margin ; seventh sternite asymmetrically divided into a right and left subtriangular plate, the left being the larger and the "pygidial carina" oblique to the right so that the species falls into the dextral group.

Euplectus mexicanus new species

Holotype male. Head 0.18 x 0.27 mm.; pronotum 0.23 x 0.25 mm. ; elytra 0.37 x 0.36 mm. ; abdomen 0.47 x 0.32 mm. ; antennae 0.37 mm.; total length 1.25 mm.

Shining reddish-brown with very short, inconspicuous but abundant flavous pubescence ; integuments distinctly punctate in marked contrast to *guatemalensis*. Body very flattened.

Head transversely trapezoidal, eyes one-third longer than tempora ; tempora evenly rounded ; two circular nude vertexal foveae on a line through eye centers and mutually nearer than either to an adjacent eye, connected by a distinct, inverted-U sulcus, the latter extending apically to a point opposite posterior margin of antennal tubercles ; these tubercles small, distant but set off posteriorly by a transverse striaform sulcus each side ; front and clypeus short and simple ; labrum with distal margin convex in outline and medianly provided with a minute tooth ; left mandible crossed dorsal to right ; ventral surface of head flattened, sparsely pubescent, with a basal gular fovea ; cervicum and prosternum simple, not longitudinally, medianly carinate ; maxillary palpi as for genus.

Antennae eleven-segmented, distant ; segment I subquadrate ; II sub-oval, slightly shorter and narrower than first ; III moniliform, much smaller than second ; **IV-VIII** transverse-moniliform, slightly larger

than third ; IX transverse-trapezoidal, distinctly wider than eighth ; X transverse-trapezoidal, much wider than ninth, as wide as eleventh ; XI suboval, as long as two preceding united.

Pronotum with lateral margins slightly sinuate each side opposite lateral fovea, with a small denticle at base of sinuation ; nude lateral fovea each side at basal third and a larger median nude fovea, these three connected by an arcuate sulcus ; disc with a well developed median, longitudinally fusiform impression which is connected to median sub-basal fovea by a sulcoid extension. This discal pattern separates this species at once from *solitarius* Sharp.

Elytra obtusely prominent at humeri. Each elytron with an entire sutural stria, three large nude basal foveae of which the inner is at base of sutural stria, median is free, and outer lies at base of a short, distinct sulciform impression; flanks with large subhumeral fovea and an unusually strong, bead-like longitudinal carina paralleling margin.

Abdomen with five tergites in a length ratio of 1.4/1.5/1.5/2.4/1 with first four strongly margined, and the last transversely rounded-triangular in dorsal outline ; first *two* tergites only transversely impressed at base in middle third, each excavation bounded laterally by basal carinae. This quickly separates *mexicanus* from *guatemalenus*.

Seven visible sternites in a median length ratio of 1.3/1.3/1/1/0.6/0.4/1.8 ; fifth sternite with a simple, very narrow sulciform impression at basal fourth, extending for nearly five-sixths of segmental width ; sixth sternite simple ; seventh sternite as in *guatemalenus* save that it is coarsely punctate. All femora slightly inflated ; tarsi as for genus. Metasternum punctate and medianly longitudinally impressed.

Allotype female. Slightly longer (1.27 mm.) and narrower (0.33 mm.) and whereas the male is widest through elytra, the female is widest through the second and third tergites. As for male save that (1) there are six sternites only, in a median length ratio of 1.3/1.2/1.2/1.3/1/1.8, all unmodified and the sixth is shaped like the last tergite, and (2) the femora are less inflated.

Described on two specimens (holotype and allotype) collected by Henry Dybas on August 8, 1941 at El Fortin, Veracruz at 3500 feet elevation. This new species is the second of the genus to be recorded from Mexico and distinct from the known Nearctic and Neotropical species.

Trimiopsis femoralis Sharp

Sharp briefly described this remarkable species on a single, doubtfully male, specimen in 1887 from El Tumbador, Guatemala. Raffray in 1908 felt that Sharp's species probably belonged in *Trimiopsis* and Park in 1942 followed Raffray in this doubtful allocation.

I have recently received a male and female of this species and am happy to clarify its position. The pair of beetles was collected by Henry Dybas on August 8, 1941 at Tezonapa, Veracruz. The male is larger (1.22 x 0.47 mm.) than the female (1.14 x 0.4 mm.) .

Male. Dorsal surface of the typically large head divided into two portions : a tumid triangular part which includes occiput and vertex, extending medianly to near a line through anterior eye margins; and a lower anterior part which embraces the front. This second portion is trisected into three triangular depressions by two oblique ridges, each ridge forming a minute fold between an antennal base and the rounded apical angle of the vertexal tumidity. This gives a median, a right, and a left anterior depression. In addition, the vertexal foveae are very large, placed laterally against the vertexal tumidity and each lies in a conspicuous supraocular depression. Thus the head has five depressions placed about a basal subtriangular vault.

The antennae, mouth-parts, pronotum and elytra are typical of the genus and need no further comment.

The first tergite has a pair of short, strong, triangular, distant basal carinae. The last tergite is nearly as long as the first, and distally extends as a prominent, trapezoidal tubercle which overhangs the seventh sternite as a roof-like extension. The sixth sternite is medianly sulcate, as is also the metasternum. The middle tibiae are swollen above and sharply notched below, at basal third ; the lower face is rounded from this basal notch to apex, but sharply carinate from notch to base, where it adjoins the trochanter ; this latter is ventrally ornamented by a laminoid tooth.

Female. This sex has the tumid vertex but the three frontal depressions of the male are rudimentary ; there are no supraocular depressions and the vertexal foveae are very much smaller. The last tergite is formed as in the male and, since the female has only six sternites, it projects roof-like over the sixth sternite ; no sternites are depressed or sulcate ; metasternum only slightly sulcate. Legs slender and unmodified.

Tomoplectus cordicollis **Raffray**

This distinctive actiform was described on a male specimen by Raffray from "Mexico" in 1898 and has not since been recorded.

I have a single female collected by Henry Dybas on July 13, 1941 from San Juan (20 miles east of Cordoba) , Veracruz. This sex has six sternites, of which the last is nearly twice as long as the fifth sternite, transverse, with its apical margin distinctly bisinuate and the median lobe thus formed is distinctly, ovately excavated.

Melba (Casey, 1897)

This complex genus is restricted to the Western Hemisphere but up to this time no species has been recorded from Mexico. An examination of the material at hand reveals four species from this country. All of these four species run to the subgenus *Melba* in previous keys but on examination they are found to depart from this subgenus in a constant structural character. *Melba* in the strict sense of the word has the elytral flank provided with an oblique carina which arises near the middle of the elytral margin and extends obliquely dorso-posteriorly to the apical end of each elytron. These Mexican species have the flanks of the elytra provided with a longitudinal carina, which arises below the humerus and extends, parallel to the elytral margin, to apex. For these species is erected a seventh subgenus, *Perimelba* (Pl. I, 2) .

Perimelba new subgenus

Melba having (1) tenth antennal segment bilaterally symmetrical, transversely trapezoidal ; (2) vertex with a single pair of foveae between the eyes, more or less connected by an arcuate sulcus ; (3) vertex simply flattened or simply inflated between the eyes; (4) head narrowing anterior to the eyes ; (5) front normally arcuate to subtruncate between antennal bases; (6) flank of each elytron with a longitudinal carina which is parallel to elytral margin throughout, from below humerus to apex.

This new subgenus departs from Nearctic species in the structure of the elytral flanks, and in this single feature allies the genus to *Dalmosella*, *Trimiomelba*, *Trimiopectus*, *Trimioopsis* and other genera.

KEY TO CENTRAL AMERICAN PERIMELBA

The following key is complete with the exception of *Melba* (?) *mimula* (Sharp) of Guatemala.

1. All body integuments, save mesosternal areas, densely granulate
granulosa new species.
- Body integuments not granulate 2
2. Intrahumeral elytral impression absent or not more than one-fourth of the elytral length, ovoidal to cuneiform but never sulciform 3

- 3 Six sternites visible (females) *minuta* (Sharp).
 Seven sternites visible (males) 4
 4. All femora uninflated; third sternite tuberculate on each side
minuta (Sharp).
 Anterior and middle femora strongly inflated, anterior femora
 with ventral face glabrous, flattened and bearing three sensory
 pores; middle femora with ventral face sinuate; third sternite
 simple *kentra* new species.

Melba minuta (Sharp)

This species was described on eight specimens in 1887 from El Reposo, Guatemala. Sharp was unable to find secondary sexual differences in this series. As he was unaware of the differential sternite number at this early date, he was probably looking for inflated femora in the male sex. I have recently received three males and one female taken by Henry Dybas at 3500 feet on August 8, 1941 from El Fortin, Veracruz. These beetles agree very well with Sharp's scanty description and are notable in that the males have legs as slender as the female. The following notes will serve to isolate this species. 1.0 mm. long by 0.37 mm. wide, with shining integuments and short, inconspicuous pubescence; uniformly, lightly punctulate head wider than long, with a pair of large, deep, pubescent foveae; pronotum as wide as head and one-seventh wider than long, of typical form for the genus; each elytron with entire sutural stria, two basal foveae, intrahumeral impression which is minute and ovoidal being about one-fifth of elytral length, flank with longitudinal carina of subgenus.

Female with six simple sternites and slender legs.

Male with seven sternites ; third sternite abnormal, provided with a small but conspicuous tubercle on each side (this parallels the male modifications of the Antillean *specularis* and *gibbula*) ; sixth sternite semicircular, sharply inclined in apical median third seventh sternite transversely fusiform, twice as wide as long ; legs slender as in female.

Melba granulosa new species

1.2 mm. long by 0.4 mm. wide.

Integuments entirely and densely set with minute granules save for mesosternum and its side-pieces ; pubescence flavous, relatively long and especially conspicuous on tergites, abundant and decumbent.

Head slightly wider than pronotum, one-fourth wider than long, with prominent, coarsely faceted eyes ; tempora and eyes subequal in length ; vertexal foveae very large (diameter equal to second antennomere) ,

circular and fringed with short, stiff setae (this setosity is an approach to *Dalmosella*) ; foveae set on a line through eye-centers and separated by a median inflation of the vertex ; foveae connected by an entire, inverted-V sulcus ; front extended in an arcuate line between antennal bases ; clypeus very short and simple ; labrum longer than clypeus ; ventral surface of head with capitulate setae of the genus.

Maxillary palpi four-segmented ; first minute, subcylindrical ; second much larger, arcuate-pyriform ; third short, nearly as wide as inflated apex of second with angulate internal and rounded external face ; fourth longer than preceding three and twice as wide as third, bearing a minute palpal cone.

Antennae distant, eleven-segmented ; visible portion of segment I half the length of second II large, wider than first, obovate ; III-VIII subequal in size, very small, third obconical, others submoniliform ; IX and X transverse-trapezoidal, tenth one-half wider than ninth ; XI twice as wide as tenth and as long as the preceding six united.

Pronotum with outline typical of genus, simple disc, biarcuate sulcus connecting lateral foveae which are invisible from above.

Each elytron with two large basal foveae, the inner at base of entire sutural stria and outer at base of short intrahumeral impression ; flank with a longitudinal carina paralleling the elytral margin from below humerus to apex.

Abdomen with five tergites in a length ratio of 1.5/1.5/1.4/1.4/0.6 with first three and a half strongly but narrowly margined, last transversely hemiovate, first *two* each with a pair of short, cuneiform basal carinae separated by slightly more than one-third of the total segmental width. Six simple sternites in a length ratio of 1/1.5/1.4/1/0.8/0.9 with last shaped as for fifth tergite.

Metasternum slightly longitudinally medianly concave ; legs slender, simple ; prosternum, coxal separation and tarsi as for genus.

Described on one female (the type) collected by Henry Dybas in dry, dead cactus at Victoria, Tamaulipas on the Tropic of Cancer, on June 17, 1941.

***Melba kentra* new species**

0.96 mm. long by 0.4 mm. wide.

Integuments shining, lightly punctulate, with short inconspicuous pubescence.

Head narrower than pronotum, one-third wider than long (this separates the species from *granulosa*, *mimula*, and *minuta*) . Eyes with small facets, of same length as tempora ; vertexal foveae small, half the width of second antennomere ; interfoveal sulcus apically vestigial ; front simply arcuate, declivous between antennae ; clypeus as long as labrum ;

occiput distinctly, medianly sulcate ; ventral surface bearing capitulates. Maxillary palpi as for *granulosa*. Antennae as for *granulosa* save that eleventh antennomere is relatively shorter, being as long as preceding four united.

Pronotum and elytra as for *granulosa* save for integument.

Abdomen with five tergites in a length ratio of 1.5/1/1/1/1 with the last transversely hemiovate ; first three and a half with strong, narrow margins ; first tergite only with a minute pair of basal carinae. Seven sternites in a median length ratio of 0.6/1.2/0.8/0.6/0.4/0.6/1.5 and all simple and unmodified, with the last subogival.

Metasternum laterally strongly inflated on either side of a deep concavity. All tibiae and tarsi simple. Posterior femora slender. Anterior and middle femora strongly swollen ; anterior femora dorsally evenly inflated, ventrally glabrous, flattened, with three large sensory pores ; middle femora more swollen than anterior and the inflation pronounced in distal third, ventral face sinuate.

Described on one male (the type) collected by Henry Dubas on August 8, 1941 at Tezonapa, Veracruz.

***Melba montuosa* new species**

1.3 to 1.44 mm. long by 0.4 to 0.47 mm. wide.

Dark reddish-brown with tan legs and antennae, shining, lightly punctulate ; pubescence intermediate in length between *kentra* and *granulosa*, conspicuous as a consequence of its flavous tint against the dark integument.

Head and pronotum subequal in both length and width, both slightly wider than long eyes and tempora subequal in length ; occiput broadly, slightly angulate ; vertex flattened between foveae ; vertexal foveae large, deep, circular (diameter equal to width of second antennomere) , connected by an apically vestigial sulcus ; front as in *kentra*; clypeus short, half as long as labrum ; ventral surface of head bearing capitulates.

Maxillary palpi, antennae and pronotum as for *granulosa* save for nongranulate integument.

Elytra distinctive. Each elytron as for *kentra* and *granulosa* save that the intrahumeral impression is a slightly arcuate, sulciform groove, the basal area of which has the inner wall steep and the outer wall oblique to humerus, the impression being long, half the elytral length.

Abdomen with five tergites in a length ratio of 1/2.4/1.8/1.4/0.7/1.2 with margins, and shape of last tergite, and basal carinae as in *kentra*. Six unmodified sternites in a length ratio of 0.7/2/1/1/0.5/1 with last shaped like last tergite. Metasternum medianly slightly impressed. Legs slender and unmodified.

Described on three females (type and two paratypes) collected at 5500 feet by Charles Seevers and Henry Dybas on June 30, 1942 at

Las Vigas, Veracruz. This appears to be a species of large size for the genus, and of a montane range, inhabiting the upper limits of the tropical zone.

Allotrimium **new genus**

Distinguishing criteria : (1) eleven-segmented, melbaform antennae with club almost wholly formed of the last segment ; (2) ventral surface of head medianly impressed, not carinate, with a gular fovea at base, and minute capitulate setae ; (3) mentum normally small, not covering mouth and mouth-parts (4) front not abnormally produced ; (5) prosternum simply convex, not medianly, longitudinally carinate ; (6) pronotum melbaform ; (7) each elytron with two basal foveae, and flank lacking a subhumeral fovea but provided with a fine sulcus paralleling margin ; (8) male sex (female unknown) with five tergites and seven sternites, both tergites and sternites abnormal ; (9) legs brachysceline, abnormal (10) tarsi three-segmented, first small, last two relatively long, not bilobed, last bearing a single claw ; (11) posterior coxae conical, subcontiguous (Pl. I, 3) .

Genotype described as follows :

Allotrimium michoacanensis **new species**

Head 0.23 x 0.27 mm.; pronotum 0.25 x 0.25 mm.; elytra 0.41 x 0.48 mm.; abdomen 0.31 x 0.41 mm.; total length 1.2 mm.

Body melbaform, reddish-brown, shining; subglabrous with sparse, minute punctulation ; pubescence sparse, subdecumbent, moderately long.

Head rounded-triangular, with coarsely faceted eyes four-fifths as long as the prominent subparallel tempora ; vertex with a pair of large, deep, circular, nude foveae set on a line through eye-centers ; foveae connected by a deep, entire sulcus which is very short, that is, its arc extends only to a point on a line with apical eye margins ; front consequently long, subtriangular, only slightly declivous so that its apical margin projects slightly over clypeus ; clypeus simple, vertical ; labrum simple, as long as clypeus ; left mandible crossed dorsal to right ; ventral surface of head slightly medianly impressed but not carinate or sulcate, gular fovea large, pubescence dual: eight minutely capitulate setae along apical geno-mental border, and sparse, prostrate simple setae elsewhere. Maxillary palpi as in *Melba*.

Antennae eleven-segmented, melbaform ; segment I only slightly visible from above, narrower than second ; II large, obovate ; III-VIII very much smaller, as in *Melba*, third obconical, others submoniliform ; IX transverse-ovate, wider than eighth ; X transverse-trapezoidal, much wider than ninth ; XI much wider than tenth, as long as preceding six segments united, subovate.

Pronotum with outline of *Melba*, disc simple, lateral foveae not visible from above, connected by a biarcuate sulcus, which is not connected with base (in *Allobrox dampfi* the transverse pronotal sulcus is connected by a median longitudinal sulcus to base) .

Elytra with evident, rounded humeri ; each elytron two basal foveae, the inner at base of entire sutural stria, the outer at base of short intra-humeral impression one-sixth of elytral length ; flank with no trace of a subhumeral fovea, but with a shallow, just discernible sulcus which parallels the margin from basal third to apex. This feature would appear to be diagnostic, since it is novel in Mexican euplectines. Thus *Melba* (*Perimelba*) and *Trimiopsis* have the flank longitudinally carinate but nonsulcate ; *Actium*, *Euplectus*, *Thesium*, *Mexiplectus*, *Tomoplectus* and *Allobrox* have a subhumeral fovea and the flank either carinate or sulcate none of these have a sulcus minus a subhumeral fovea.

Abdomen abnormal, equaled among neotropical euplectines by only two genera (*Faronoma* of Chile and *Allobrox* of Mexico, both of which are trichoniforms with two unequal tarsal claws) . Five tergites in a length ratio of 2/1.4/1.2/1/0.7 with first three strongly margined. First tergite with normal margin of uniform width. Second tergite and third tergite with margins longitudinally arcuate, and cuneiform being narrow at base and expanded at apex ; expanded apex of second juts above narrow base of third ; dorsal surface of margin of second convex and tumid ; dorsal surface of margin of third concave and foveoid ventral margin of second sinuately concave-foveoid.

Seven sternites (apparently six as the seventh is notably minute, transverse fusiform and seen only in strong light and high magnification) in a length ratio of 0.6/1.8/0.6/0.4/0.5/0.5/0.2 formed as follows. First short, slightly longer than posterior coxae. Second medianly convex, bicarinate longitudinally each side near base and with a foveoid excavation below margin of first tergite. Third medianly flattened, laterally foveate and produced dorso-posteriorly as an appressed angle below apex of margin of second tergite, and investing base of margin of third tergite. This is a singular approach to *Allobrox dampfi*.¹ sternite medianly concave ; fifth with a narrow transverse depression at base ; sixth slightly concave ; seventh minute, less than half the length of sixth, and transversely fusiform. This seventh sternite distinguishes

males have a relatively large, oval to circular distal sternite.

Prosternum simple, not medianly longitudinally carinate.

Metasternum broadly, distinctly concave. Anterior and middle coxae contiguous; posterior coxae conical and subcontiguous.

Anterior legs simple.

Intermediate legs : trochanter spined on ventral face ; femur with a longitudinal carinoid ridge on ventral face which expands at middle to form a prominent, arcuate, laminoid tooth ; tibia with a sharp spine directed apically at apical three-fourths of ventral face.

Posterior legs : trochanter spined on ventral face, rest of leg simple.

Tarsi three-segmented, normally constructed ; first minute ; second five times longer than first ; third three times longer than first and bearing a single arcuate claw.

Described on a single, presumably male, specimen (the type) taken by Charles Seevers on July 25, 1941 at Zamora, Michoacan. This species is known, so far, from the Pacific drainage of the Mexican-Guatemalan province an area much less well known for pselaphids than the Atlantic drainage of the same area.

BRACHYGLUTINI

Scalenarthrus diplorachis new species

Holotype male. 1.1 mm. long by 0.7 mm. wide, strongly shining, subglobular, dark reddish-brown with short, sparse, decumbent setae save for metasternum.

Head subquadrate, slightly wider than long, and as wide as the pronotum, with large eyes of same length as tempora, eyes composed of about 28 coarse facets ; a pair of nude, deep vertexal foveae on a line through eye-centers, mutually much further apart than either from an adjacent eye ; each fovea of the diameter of an eye facet, and the foveae free, with no trace of an interfoveal sulcus; front between antennae with a pair of foveaform pits, one just mesiad of each vestigial antennal tubercle ; thus the head has no frontal sulcus but appears quadrifoveate ; occiput and vertex simple, flattened ; clypeus simple; labrum with the apical margin strongly concave ; right mandible crossed dorsal to left mandible, and mandibles each with an obliquely truncated boss on external face near base, as in *undecimtypus*; maxillary palpi simple, as for genus; ventral surface of head with carinal pattern as in *X ybaridana nicola*.

Antennae distant, relatively simple for the genus, eleven-segmented ; segment I quadrate ; II quadrate, narrower ; III-VIII much smaller, third obconical, others subquadrate ; IX obconical, nearly twice as long as wide, and nearly twice as long as eighth ; X slightly wider than long, obtrapezoidal, slightly wider than ninth ; XI elongate-oval, strongly narrowed in the latero-mesial axis, sinuate on ventral face in apical third as in *concaus*, as long as three and a half preceding segments united.

Pronotum simple, with a just discernible median impression at basal third as in *inflatus*.

Each elytron with wholly unmodified flank, no intrahumeral impression, no basal foveae, the sutural stria is vestigial ; in strong oblique light four minute foveal impressions are just discernible, as in *concausus*.

Abdomen with five tergites in a length ratio of 3/1.5/1/0.6/2 with the first three very narrowly margined ; the first is very long, and lacks basal carinae ; the fifth is next longest and sexually modified, it is subglabrous and medianly, longitudinally tumid or gibbous. This is a striking feature.

Five visible sternites in a length ratio of 1/0.5/0.5/0.5/1 and all are simple and convex.

Mesosternum produced between middle coxae as a truncate plate, this plate medianly longitudinally carinated.

Metasternum transversely divided into two portions by a strong semi-circular ridge : (1) a flat, truncate-triangular, elevated portion which meets the mesosternal process, and (2) a posterior portion which is laterally polished, glabrous and tumid, and medianly is broadly sulcate ; this sulcation is deepest at basal end, and its sides overhung by long, mesially-directed setae.

Middle coxae distant ; posterior coxae very distant, their separation being two-third of total median metasternal length.

Legs perfectly simple and unmodified save for the posterior tibiae which are abnormal: each posterior tibia has on the ventral face two relatively tremendous spurs. Each spur is placed at about apical five-sixths of tibia, and are nearly as long as the long posterior tarsi. These curious spurs have given the species its name. Lacking direct observations on their role in nature, one wonders whether they would interfere in walking, or aid in providing more spring to the step. These spurs are illustrated (Pl. I, 6) .

Tarsi long, three-segmented ; first segment small, last two relatively long, the second much longer than the third, the third bearing a single claw ; anterior tarsi with second tarsomere relatively shorter and thicker than same segment of posterior tarsi in relation to the third tarsomere.

Allotype female. The female of this species is of interest in that the distal antennomere is also apically sinuate on the ventral face and the posterior tibiae are provided with the long spurs. Hence two such promising characters are not of, secondary sexual import. The female differs from the male in the following particulars : (1) slightly smaller (1.0 mm. long by 0.6 mm. wide) ; (2) fifth tergite strikingly different, being heavily setose and evenly convex ; (3) the metasternum is also strikingly different, being medianly flat, heavily setose and punctulate ; (4) front with the foveal impressions between antennal tubercles much

less distinct, and connected by a vestigial impression ; (5) antennae with IX quadrate, and X distinctly transverse.

Sex was determined by dissection of a paratype female. Described on four specimens : holotype male eight miles east of Cordoba, Veracruz at 2000 feet on July 11, 1941 ; allotype female, paratype male and paratype female at Tierra Blanca, Veracruz on July 28, 1941. Collected by Henry Dybas.

Diplorachis is a member of Group II of the genus. Its only near ally is *concausus*. The following group key to species supersedes my 1942 key to this part of the genus.

NEW KEY TO GROUP II, SCALENARTHURUS

1. First visible sternite medianly very minutely carinate; metasternum convex; not known north of Brazil 2
 First visible sternite never medianly carinate or carinoid; metasternum either concave or flattened; not known south of Guatemala 3
2. Antennal segment IX briefly obconical; XI elongate-ovate, as long as preceding four segments united; base of pronotum punctate. Brazil ■■■■■ *schaufussi* Raffray.
 Antennal segment IX transverse; XI large, ovate, the base slightly subobliquely truncate, as long as preceding five segments united; base of pronotum impunctate. Bolivia.
simplex Raffray.
3. Front with a strong transverse sulcus of even depth between antennal bases; antennal segment IX very transverse, nearly twice as wide as long; segment X very transverse, twice as wide as long. British Honduras and Guatemala *concausus* Fletcher.
 (Metasternum concave in male; female unknown.)
 Front with either a pair of interantennal foveae or a pair of foveal impressions connected by a vestigial impression; antennal segment IX either nearly twice as long as wide or as long as wide; X either slightly wider than long or about one-half wider than long. Veracruz, Mexico 4

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concave, the concavity polished and over-hung by long mesially pointed setae MALE *diplorachis* new species.

Fifth tergite heavily pubescent and *evenly* convex; the metasternum flat, distinctly punctulate and simply and heavily pubescent
FEMALE *diplorachis* new species.

BATRISINI

Arthmius geniculatus (Sharp)

In 1887 Sharp described *Batrisus geniculatus* on five specimens, including both sexes, from Jalapa, Veracruz. In 1897 Raffray examined the type male of Sharp's species, and correctly assigned it to *Arthmius*, **Group III.**

It gives me satisfaction to record this species again. **I** have a male taken by Henry Dybas on June 23, 1941 near Tamazunchale, San Louis Potosi and a male and female collected from beneath a stone on June 29, 1941 at Jalapa, Veracruz by Charles Seevers. These three specimens reaffirm Raffray's diagnosis and extend the known range of the species. Further they allow us to make a direct comparison with two other related species in this section of Group III, namely *pedestrianus* Raffray from Sierra de Durango, and *neotropicus*, one of the new species subsequently to be described. This comparison is facilitated by the illustrations of male antennae of these species (Pl. I, 7-9) as well as by the key to males of Group III given later.

Arthmius neotropicus new species

2.2 mm. long by 0.8 mm. wide. Reddish-brown with legs, palpi and antennal club yellowish-brown ; integuments shining, lightly punctulate, clothed in moderately abundant setae of moderate length.

Head with prominent, coarsely faceted eyes as long as tempora ; epicranium subquadrate and evenly convex from occiput to front, with a pair of conspicuous, nude, free vertexal foveae on a line through posterior eye margins ; declivous front narrowing between antennal acetabulae and then expanding to form the clypeus. Clypeus erected above labrum ; triangular when view from side ; distal margin concave, each corner cusped. Labrum small and transverse. Left mandible crossed dorsal to right.

Maxillary palpi four-segmented, normal for genus; first segment small ; second large, arcuate-pedunculate ; third short, wider than inflated apex of second, with angulate internal and convex external face ;

fourth longer than first three united, wider than third, of a conico-oviform shape with apical third slightly arcuate-sinuate and apex bearing a minute, short cone.

Ventral face of head evenly tumid.

Antennae eleven-segmented, abnormal ; segments V to VIII inclusive forming an arc or secondary geniculation ; V regularly ovate, distinctly larger than either IV or VI ; VI and VII subequal in size and form, longitudinally slightly arcuate ; VIII regularly elongate-ovate, distinctly longer than wide, shorter than seventh, as wide as seventh ; ventral faces of segments forming arc slightly flattened and subseparate. General form and proportions as illustrated (Pl.I,9) .

Pronotum with disc and sides normally convex, outline as for Group III, with a very deep lateral fovea each side at basal third, these foveae connected by a deep transverse sulcus ; an elongate foveoid impression each side at basal sixth.

Each elytron with simple flank (Pl.I,5) ; three simple, deep foveae at base, the inner at origin of entire sutural stria ; humeral angle rounded but elevated.

Abdomen with five tergites in a length ratio of 5/2/2/3.5/2 with first having lateral margins formed by an external carina - half the tergite length and an internal carina four-fifths tergite length ; second and third with only an internal carina, half the tergite length. First tergite with a pair of straight, parallel basal carinae separated by half the total segmental width. Last tergite with apical margin incised to invest last sternite.

Six sternites in a medium length ratio of 3/0.8/0.6/0.1/3.5/1 with first medianly extended at base into a truncate process having a polished boss which fits into median incision of the deeply concave metasternum. Fifth sternite very abnormal, with an oval excavation in basal half and a high, erect, laminoid spine arising from sternite center, the apex of the spine sharply recurved apically. Sixth sternite a small, triangular piece which rotates to the left to allow extrusion of the large, bilaterally asymmetrical aedeagus (Pl. II, 10).

Anterior legs : femur with straight ventral face and medianly, angularly inflated dorsal face ; tibia gradually inflated to center of dorsal face where the tumidity stops suddenly in a rounded and blackened edge, sharply declivous below this undercut edge to form a semilunar notch to apex, with an ovate brush of short setae set within this notch near apex.

Intermediate legs : femur normally swollen ; tibia with a strong arcuate spinoid process at apex of ventral face.

Posterior legs : femur normally swollen ; tibia slightly arcuate, thicker in apical half and with usual brush of apical setae. Tarsi as for genus.

Described on one male (the type) taken by Henry Dybas on June 24, 1941 at 4000 feet elevation near Chapulhuacán, Hidalgo. This new species is a member of Group **III** and is allied to *geniculatus* (Sharp) and *pedestrianus* Raffray, from both of which it differs in the male antennae and fifth sternites. These species are separated in a key to this group which follows shortly.

***Arthmius asymmetricus* new species**

1.5 mm. long by 0.67 mm. wide. Uniform shining yellowish-brown with longer pubescence and stronger punctulation than in *neotropicus*.

Head with very prominent, coarsely faceted eyes, the eyes nearly twice as long as tempora; subquadrate epicranium with a pair of relatively small, deep, free, vertexal foveae (foveal diameter slightly less than ocular facet) on a line through eye-centers; vertex slightly but evenly convex, front rather sharply declivous between antennae; clypeus shorter, more strongly declivous and with apical margin more deeply incised and apical clypeal angles rounded-obtuse, instead of cusped as in *neotropicus*. Labrum more transverse and more visible from above. Left mandible crossed dorsal to right. Maxillary palpi as for genus save for one feature: external face of fourth segment has at center a small, oval foveoid scar. Ventral surface of head relatively flattened.

Antennae eleven-segmented, abnormal; segments V to IX inclusive forming an arc or secondary geniculation; V regularly ovate, larger than either IV or VI; VI, VII and VIII relatively small, elongate, simple; IX distinctive, much longer than X, very asymmetrically articulated to eighth and tenth segments, its lateral face an irregular parallelogram, with the apicomeral and basolateral angles tufted. General form as illustrated (Pl. I, 10).

Pronotum and elytra generally as in *neotropicus*.

Five tergites in a length ratio of 4/1/1/3/1.5 with first having both external and internal marginae carinae for only basal half of length; otherwise as in *neotropicus*.

Six sternites in a length ratio of 2/0.25/0.25/0.1/2.5/1.5 with fifth notably abnormal. This fifth sternite is bilaterally asymmetrical; its left side is convex while the center and right side are irregularly and deeply concave-excavated; from the right center arises a laminoid spine whose apex is lengthily folded towards the right (Pl. II, 11).

Metasternum as for *neotropicus*.

Anterior legs: femur inflated as in *neotropicus*, but less strongly; tibia very abnormal, its dorsal face simple in basal half but the anterior face is strongly produced from base as a laminoid shelf of rapidly increasing width which suddenly narrows at center to give a hemipyiform contour from above, apical half of dorsal face excavated.

Intermediate legs : femur evenly inflated ; tibia with an arcuate apical spine or uncus.

Posterior legs simple. Tarsi as for genus. The posterior trochanters perfectly normal.

Described on one male (the type) from near Tamazunchale, San Louis Potosi on August 16, 1941. This male was collected by Henry Dybas at light at night. This species is a member of Group III. Its nearest ally is *scaphiger* (Sharp) which Fletcher (1930) definitely recorded from Jalapa, Veracruz. *Scaphiger* differs from the new species in many ways ; for example, the posterior trochanters are abnormally large, concave behind with the concavity densely setose ; antennal segment IV slightly larger than III ; antennal arc of the same segments but none of these segments strikingly abnormal ; front tibiae less inflated, etc.

The bilaterally asymmetrical fifth sternite in conjunction with the bilaterally asymmetrical aedeagus of *asymmetricus* would seem to mark one of the apices in pselaphid specialization. This advances the argument previously given (1942, p. 15-17) , since we have here males with only six visible sternites, of which the sixth is small and the aedeageal covering is consequently still more basad ; second, this covering is bilaterally asymmetrical and hence would appear to be coadapted to the aedeagus ; third, this is another datum for the phylogenetic remoteness of the batrisines from their ancestral staphylinoid stocks.

The following key to species of Group III supersedes my key to this part of the genus. It concerns only neotropical forms.

NEW KEY TO GROUP III, *ARTHMIUS*

- | | | |
|----|--|-------------------------|
| 1. | Six sternites fully visible (Males) | 2 |
| | Five sternites fully visible (Females) | 15 |
| 2. | Antennomere I very abnormal with the mesioapical angle strongly produced | 3 |
| | Antennomere I simple, not as above | 4 |
| 3. | Antennomere I with mesioapical angle a long, flat, obtuse spine; vertex simple, not excavated; Mexico | <i>bubalus</i> Raffray. |
| | Antennomere I with mesioapical angle a short, conical, blunted tooth; vertex strongly excavated and toothed; Panama Canal Zone | <i>sabomba</i> Park. |

- | | | |
|-----|--|----|
| 4. | Antennae with intermediate segments forming an arc or secondary geniculation (Pl. I, 7-10) | 5 |
| | Antennae with intermediate segments not forming an arc | 12 |
| 5. | Arc confined to segments III, IV and V; V with ventroapical face produced and projecting ventroapically ; Guatemala <i>truncaticeps</i> (Sharp) . | |
| | Arc confined to segments distal of III | 6 |
| 6. | Arc confined to IV, V, VI, VII and VIII; VI and VII slightly longer than wide with squamous setae on their ventral faces; VIII slightly transverse, with apical angle acute; Yucatan, Mexico <i>curvicornis</i> (Schaufuss) . | |
| | Arc confined to segments distal of IV | 7 |
| | Arc confined to segments V to IX inclusive | 8 |
| | Arc confined to segments V to VII, or V to VIII | 9 |
| | Posterior trochanters very large, concave behind with the concavity densely setose; segments of arc more or less normal; Veracruz, Mexico : <i>scaphiger</i> (Sharp). | |
| | Posterior trochanters normal; segment IX very abnormal, in the form of an asymmetrically articulated, irregular parallelogram; San Louis Potosi, Mexico (Pl. I, 10) <i>asymmetricus</i> new species. | |
| 9. | V not much larger than IV; Yucatan, Mexico <i>simplicior</i> Raffray. | |
| | V distinctly larger than IV | 10 |
| 10. | V greatly expanded ventrobasally; VIII expanded ventroapically (Pl. I, 7) ; San Louis Potosi and Veracruz, Mexico <i>geniculatus</i> (Sharp) . | |
| | V regularly ovate | 11 |
| 11. | VII very large, arcuate-triangular with ventroapical angle acute; VIII minute, transversely oblong; fifth sternite with a wide, shallow, relatively simple excavation; Durango, Mexico (Pl. I,8) <i>pedestrianus</i> Raffray. | |
| | VII normally elongate-ovate; VIII normally submoniliform, larger than seventh; fifth sternite with a basal concavity and a large, laminoid spine with recurved apex; Hidalgo, Mexico (Pl. I, 9) <i>neotropicus</i> new species. | |

12. IV very transverse, dilated, one-half wider than II, the inner face rather concave and notably setose; V similar to IV but wider and slightly produced on external face; VI expanded on external face, auriculate, twice as broad as II; VII subquadrate, narrower, not wider than II; Veracruz, Mexico *subfusus* Fletcher.
Antennae not as described above 13
13. III swollen, much larger than I or II; II square; IV to VIII oval; Brazil *inflatipes* Raffray.
Antennae not as described above 14
14. First four antennomeres simple; V to X progressively larger, slightly flattened; V obconical; VI subglobular, VII square; VIII slightly transverse; Brazil *platycerus* Reitter.
V at least twice as long as III; VI slightly shorter than VIII; VII nearly as long as V, slightly clubbed; Bolivia *articularis* Raffray.
15. Abdomen with apical margin of fifth tergite evenly rounded *sabomba* Park.
Abdomen with apical margin of fifth tergite medianly angulated to sharply mucronate 16
16. The two median depressions at base of first tergite very transverse and almost confluent 17
The two median depressions at base of first tergite simply ovate and very distant from each other *articularis* Raffray
17. Intermediate tibiae strongly notched on the external face beyond middle of length; Chile *singularis* (Schaufuss).
Intermediate tibiae not so notched *geniculatus* (Sharp).

This key is complete for Group III save for *bicolor* Reitter described on the female sex only, from Brazil. As will be apparent, only four species are keyed out to the female sex, and only three species (*sabomba*, *geniculatus* and *articularis*) are keyed out to both sexes. This weakens the key since the females of several species of the Mexican-Guatemalan area will no doubt key to *geniculatus* until we have more exact information on this sex from authentic pairs of the several species involved.

This paucity of information on the females of *Arthmius* is probably a consequence of the differential ecology of the sexes. I showed earlier (1942, p. 221-222) that the males of *sabomba* were abundant at lights at night, while both sexes were to be found in rain forest mold during the day. Recent information strengthens this situation. Thus the pair of *geniculatus* taken on June 29 were beneath a stone in the daytime and both had recently pupated.

Since the female *Arthmius* quite generally has smaller eyes than the male, this decrease in size may represent an actual reduction in the number of facets. To test this hypothesis I counted the facets in both sexes of *geniculatus* and *sabomba* with the following results : *sabomba* male 24 facets, *sabomba* female 14 facets ; *geniculatus* male 26 facets, *geniculatus* female 20 facets. Thus in the two cases available to me, the males had a higher facet number, and since the females are distinctly very uncommon at lights at night, this latter sex may be structurally less suited for response to collecting-lights at night. Whether the female is less nocturnal than the male is another problem, requiring exact experimental technique ; certainly it would not be materially different in activity pattern or else successful copulation and the continuance of the species would be impaired. This differential facet number, found in other parts of the family as well as in *Arthmius*, may suggest an entirely different answer. Namely, that the males, with better night-vision, take an active part in the search for females during the breeding period or periods in certain species.

***Arthmius plurispinosus* new species**

1.9 mm. long by 0.7 mm. wide. Uniform reddish-brown, shining, lightly punctulate, with moderately abundant pubescence.

Head broader than long, with prominent, coarsely faceted eyes ; tempora very oblique, one-third shorter than the eyes ; vertex strongly convex, with a pair of free, nude, deep foveae of relatively large size (twice the diameter of an eye facet) on a line through eye-centers ; occiput, vertex and front in a continuous convex contour to interantennal area where the front and clypeus become more declivous ; front simple, with neither an interantennal frontal impression nor with frontal foveae ; clypeus dorsally as in *neotropicus*, save that the apical margin is nearly straight save for a sudden blunted cusp at each lateral angle, and consequently the transverse labrum is not visible from above ; maxillary palpi with the foveoid scar of external face of fourth segment as in *asymmetricus*.

Antennae long and slender, eleven-segmented, perfectly normal, with first eight segments longer than wide, **VIII** distinctly smaller than **VII**, club simple and not sharply defined. This antennal pattern a common

one in Group V, and especially similar to such species as *simplicicornis* (Sharp) .

Pronotum and elytra as in *neotropicus*.

Abdomen with five tergites in a length ratio of 5.5/1.3/1.2/3/1.5 with first having external and internal marginal carinae apically convergent and as long as basal half of segmental length, and strong, straight, parallel basal carinae separated by slightly more than half the total segmental width ; fifth tergite transversely semicircular with an evenly convex, entire apical margin.

Six sternites in a length ratio of 3.3/0.5/0.5/0.1/4/1 with last two abnormal: fifth transversely ovate with nearly its entire face occupied by an oval shallow depression, this depression appears longer than wide due to the longitudinally concave profile of the sternite, and the median apical fourth of this sternite very sharply triangularly incised as illustrated. Sixth sternite is minute, triangular and fits completely into the incisure of the fifth (Pl. II, 8) .

This coadaptation is of interest. In *geniculatus*, *neotropicus*, and *asymmetricus* the reverse is the case : the fifth tergite is incised to contain the sixth sternite (Pl. II, 9-11) .

Metasternum deeply, narrowly sulcate medianly.

Anterior legs : trochanter simple, unspined ; femur simple ; tibia abnormal, dorso-anterior face gradually swollen from base to apical three-fourths where it is suddenly cusped, and then excavated in remaining apical fourth.

Intermediate legs : very abnormal, as illustrated (Pl. II, 1) trochanter with a long ventral spine ; femur with a long spine from ventral face at basal third ; tibia with a short spine from ventral face near apical third, and an arcuate spinoid process at apex.

Posterior legs : simple.

Tarsi normal, as for genus, save that second segment of anterior tarsi is swollen in basal third.

Described on two males, the type from Penuela, Veracruz taken July 17, 1941 by Henry Dybas ; a paratype from Cordoba, Veracruz taken July 10, 1941 by Charles Seevers. The paratype was taken flying to a light at night, and bears out what was said on the sex differential in this genus. *Plurispinosus* is allied to *tibialis* Raffray from Bolivia and *simplicicornis* (Sharp) from Guatemala. It differs from both of these species in numerous details. *Tibialis* has the clypeus medianly, longitudinally gibbous and deeply excavated on each side ; anterior tibiae not dilated ; and both the anterior and the intermediate trochanters are spined. *Simplicicornis* has a quadrate head the vertex of which is flattened and bears, in addition to the vertexal foveae, a pair of interantennal foveal impressions more or less connected by a trans-

verse sulcus; and all of the trochanters unarmed. Thus plurispinosus is especially distinct from its allies in having the combination of a convex, bifoveate vertex; no frontal foveae or transverse sulcus; anterior trochanters unspined; heavily armed intermediate legs. All three species belong to Group V with males having normally convex pronotum, normal antennae but abnormal legs.

TYCHINI

Recent acquisition of specimens has served to clarify the status of two neotropical genera, *Buris* and *Dalmoburis*, as follows:

Common tribal key characters: (1) each elytron with no basal foveae; (2) each elytron with an entire longitudinal carina on the flank, from near humerus to apex; (3) males with seven sternites, the seventh longitudinally divided into a right and left plate; (4) females with six sternites, the sixth simple and undivided.

They may be separated as follows:

Abdominal margin limited to the first tergite and formed by two subparallel carinae which lie in basal half and do not reach segmental apex; known from Guatemala and Mexico

Buris (Fletcher, 1928).

Abdominal margin limited to the first three tergites; known from Panama Canal Zone

Dalmoburis (Park, 1942).

Buris (Fletcher, 1928) emended

I have acquired a series of *brevicollis* (Sharp) which includes 15 specimens (6 males, 9 females) of the typical form, and 5 specimens in which the longitudinal carina of elytral flank ends in a subhumeral fovea. Since one of the original criteria for *Buris* was the presence of the subhumeral fovea, *brevicollis* must now be assigned to *Buris* and this genus emended to include species which lack the secondary sexual features of the genotype. The following reorganization is suggested:

- | | | |
|----|--|---|
| 1. | Seven sternites, the last longitudinally divided (MALES) | 2 |
| | Six sternites, the last undivided (FEMALES) | 6 |
| 2. | Posterior tibiae strongly arcuate in distal half, with a tooth at basal end of the arcuation | 3 |
| | Posterior tibiae not arcuate and not dentate at basal third | |
| | <i>mexicanus</i> new species. | |

3. A flavous-topped, drum-shaped tumulus on each side of the ventral surface of prothorax, on a line between the anterior coxal cavity and the anterolateral angle of pronotum 4
Prothorax without this structure 5
4. Flank of each elytron with a longitudinal carina which ends simply near humerus *brevicollis brevicollis* (Sharp).
Flank of each elytron with a longitudinal carina which ends in a strong subhumeral fovea *brevicollis sharpi* new variety
5. Antennomere X strongly pedunculate at base, broadly produced in apical two-thirds *brunneus brunneus* Fletcher, Genotype.
Antennomere X transverse, normally truncate at base, not pedunculate and not apically modified *brunneus fletcheri* new variety
6. Last tergite never produced into an acute spine *brunneus* Fletcher
Last tergite always produced into a spine *brevicollis* (Sharp)

Buris brevicollis (Sharp)

This species was described in the genus *Dalmodes* in 1887. It was based on a male and a female from Coatepeque, Guatemala at 1300 feet elevation. My material in the species comes from Veracruz. (Cordoba, Penuela and Tezonapa) and San Louis Potosi (Huichihuayan and Tamazunchale). Thus this species population appears to be distributed on the Atlantic Slope, between the Tropic of Cancer and 14° N. latitude, and from sea level to at least 2000 feet elevation, that is, within the tropical zone (Pl. III).

It can not be *Dalmodes* as this genus has six sternites in both sexes and each elytron has three to four basal foveae; it can not be *Bythino physis* as this genus has the elytral flank longitudinally sulcate. Previously (Park, 1942) Sharp's species was placed in the Isthmian genus *Dalmoburis*, but recent material having a subhumeral fovea on each elytral flank precludes this allocation and it is now felt that its general organization places it in an emended *Buris*.

Buris brevicollis is a highly variable species. Not only is the subhumeral fovea present (Pl. I, 4) or absent (Pl. I, 2) in both sexes, but other features vary quantitatively. Thus Sharp, with but two

specimens, stated that the apical spine of the fifth tergite was conspicuous in the female and rudimentary in the male. Park (1942) with five specimens found the spine conspicuous in the male and rudimentary in the female. Now, with twenty specimens, it appears that both statements are partially true. This apical spine (Pl. II, 5) varies from strong to vestigial in both sexes, and this variation is curved (Pl. II, 4) to demonstrate this normal variation. The spine is always present but is not sex-limited, and previous observations were apparently made on extremes in the normal variation curve, although in my series the females have the spine better developed on the average. Thus the female has the spine varying from a prominent structure, one-twenty-fifth of the body length (0.067 mm.) to a rudimentary projection (0.006 mm.) ; in the male the spine varies from 0.05 mm. to 0.006 mm. in length. This affects the size range, the females being 1.60 to 1.67 mm. long, while males average slightly smaller.

In the next place, *brevicollis* males, whether having or lacking the subhumeral fovea, all possess a hitherto undescribed structure which demonstrates the homogeneity of the population. This is a circular, elevated, drum-shaped tumulus on the antero-lateral field of the ventral prothoracic surface. This pair of tumuli has a flavous apical surface which easily distinguishes them from the darker surrounding integument. The tumuli are never present in the female *brevicollis*, and are not present in either sex of other species of *Buris* or the related *Dalmoburis*. Therefore we have two structurally different populations, which are differentiated as follows:

***Buris brevicollis brevicollis* (Sharp)** in which the elytral flank bears a longitudinal carina but no subhumeral fovea (Pl. I, 2). To this typical variety I assign Sharp's male and female from Coatepeque, Guatemala, and 15 specimens in my collection : Huichihuayan, San Louis Potosi (1 female, June 18, 1941, H. Dybas, in log mold) ; Cordoba, Veracruz (3 males, July 20, 1936, C. H. Seevers) ; eight miles east of Cordoba, at 2000 feet (1 male, 4 females, July 11, 1941, H. Dybas) ; Tezonapa, Veracruz (August 8, 1941, 2 males and 2 females, H. Dybas) ; Penuela, Veracruz (2 females, July 17, 1941; H. Dybas) .

Buris brevicollis sharpi new variety. Similar structurally to the typical variety save that the elytral flank has the carina associated basally with a large subhumeral fovea (Pl. I, 4) . This new variety approaches the genotype in this feature. To this variety I assign five males from San Louis Potosi : Huichihuayan (2 males, June 18, 1941, in log mold, H. Dybas) and Tamazunchale (3 males, June 22, 1941, in log mold, C. H. Seevers) .

This group of five males is perfectly homogeneous among themselves, and with *brevicollis* s.s. in the distinctive prothoracic tumuli. In time it may prove to be a northern subspecies but there are too few data at present on range, and too little known of the species between Guatemala and Veracruz, to make this assumption.

Buris brunneus fletcheri new variety. This new variety is homogeneous with the genotype, *brunneus brunneus* Fletcher, save for several structural features : (1) the median longitudinal frontal carina is rudimentary ; (2) the male antennae are very different, especially antennomeres VII to X inclusive. These striking antennal differences are illustrated (Pl. II, 2, 3) but a word should be said in regard to the tenth antennomere in this species.

In the genotype, *brunneus brunneus*, the tenth antennal segment is very abnormal. It is pedunculate, narrowed at base, and broadly, asymmetrically produced in the apical two-thirds. My material in this typical variation comes from Huichihuyan and Tamazunchale, San Louis Potosi and Cordoba, Veracruz, and checks with a paratype male at the U. S. National Museum.*

The new variety, *fletcheri*, has the tenth antennal segment distinctly transverse, one-third wider than long, not pedunculate but normally truncate at base, and the apical two-thirds are not produced. To this variety I assign 4 males taken in log mold by Charles Seevers at Cordoba on July 20, 1936 and 2 females taken at Tamazunchale, San Louis Potosi by Henry Dybas on June 22, 1941. In time, with more material available for study, this may prove to have full species status but is left as a variety pending further information.

Buris mexicanus new species

Head 0.23 x 0.3 mm. ; pronotum 0.27 x 0.32 mm. ; elytra 0.35 x 0.47 mm.; abdomen 0.43 x 0.40 mm.; total length 1.3 mm.

Uniform yellowish-brown, moderately shining; punctulation sparse and minutely subasperate on head and pronotum, rather coarse and confused on elytra, with nearly impunctate abdomen.

Head with prominent, parallel tempora ; eyes small, eight-tenths as long as tempora, composed of 24 minute facets, the eye suboblong in lateral view, being deeper than long ; dorsal surface of cervicum with anterior half medianly carinate and semicircularly glabrous on either side of carina, the posterior half triangularly elevated and granulated ; posterior half of vertex strongly elevated, with apical face of elevation

abruptly vertical and biarcuate to form a median projection ; a pair of large vertexal foveae (each almost as large as eye) situated one on each side of median vertexal projection ; a median longitudinal carinoid elevation, basally setose, from vertexal projection to frontal margin ; a foveoid depression apical of each vertexal fovea, on each side of frontal carinoid elevation ; frontal margin arcuate between antennae and then abruptly declivous and simple ; ventral surface of head moderately flattened between eyes, with a deep gular impression at base.

Maxillary palpi simple, four-segmented ; as in *brunneus*.

Antennae distant, eleven-segmented. From a dorsal view: segment I largely hidden, broader than second II regularly ovate ; III and IV small, transverse; V transversely ovate, slightly wider than either fourth or sixth ; VI and VII subequal, transversely ovate, not as wide as fifth but of same form, the fifth, sixth and seventh being asymmetrical and slightly produced mesially ; VIII, IX and X normal, regularly transversely trapezoidal and rapidly increasing in size, the tenth being as wide as eleventh ; XI as long as preceding three united, with apical two-thirds rapidly narrowing. From a mesial view : I very elongate-arcuate and strongly dorso-ventrally flattened ; II subovate ; III narrower than second, submoniliform ; IV transverse, slightly wider than third ; V longer and wider than fourth or sixth ; VI, VII, VIII and IX progressively slightly wider and slightly subacute ventrally ; X and XI as from dorsal view.

Pronotum as for genus, obcordate with simple disc, a lateral fovea each side at basal third connected by entire, arcuate sulcus.

Each elytron with prominent, rounded humerus; no basal foveae; entire sutural stria ; flank with strong longitudinal carina (Pl. I, 2) .

Abdomen with five tergites in a length ratio of 1.5/1.5/1.5/1.5/1 with margin limited to basal half of first tergite, as typical of genus.

Seven sternites in a length ratio of 1.8/1.3/1.3/1/0.5/1.3/0.5 with first perfectly convex and nontubefuculated, sixth slightly flattened and seventh divided into a right and left subtriangular plate.

Legs perfectly slender and simple, lacking tubercles, excavations, teeth, spines or foveae. Tarsi three-segmented, first small, last two relatively long, second longest, third with an arcuate claw.

Metasternum long, slightly concave. Posterior coxae distant, separated by three-fourths the distance between middle and posterior coxae. Prothorax without ventral tumuli.

Described on a single male (the type) from Tamazunchale, San Louis Potosi taken June 22, 1941 by C. H. Seevers.

This new species is very distinct from the rest of the genus and is the only one in which the male sex has simple legs. In 1908 Raffray erected the genus *Bythinophysis* with *punctipennis* Raffray of French

Guiana as genotype, known only from the female sex ; this species is allied to *Dalmodes* in having the elytral flank longitudinally sulcate, but differs from the latter genus in having the first tergite much longer than subsequent tergites and in the complete absence of basal elytral foveae. Other species were subsequently placed in *Bythinophysis* but may prove to belong to *Buris* when their types can be examined. There are two species of Mexican *Bythinophysis* of interest here, and these two are quickly separated from *mexicanus* as follows :

1. Male anterior femora broadly foveate beneath
Bythinophysis venustulus (Schaufuss) .
 Male anterior femora simple, not ventrally foveate 2
2. Male first sternite medianly tuberculate at base
Bythinophysis schaufussi (Raffray) .
 Male first sternite medianly flattened, not tuberculate at base
Buris mexicanus new species.

TYRINI

Hamotus (*Hamotus*) *prostatus* new species

Head 0.46 x 0.46 mm.; pronotum 0.46 x 0.46 mm.; elytra 0.60 x 0.80 mm.; abdomen 0.73 x 0.84 mm.; total length 2.25 mm.

Shining reddish-brown, subimpunctate integument save for the elytra which are lightly punctulate, and the distal antennomere which is subgranulate ; pubescence yellow-brown, long, silky and abundant.

Head with tempora long (twice as long as eyes) but strongly and evenly rounded into occiput so that they are not prominent ; eyes of about 88 facets ; vertex normally convex and with a median narrow vertexo-occipital impression ; a pair of small, circular vertexal foveae on a line through posterior eye-margins and a small median circular fovea on a line through eye-centers, these three foveae then being free, close together and each forming an angle of a triangle ; antennal tubercles small, relatively distant and separated by a broad, shallow, longitudinal impression with strongly sloped walls from interantennal line to median fovea clypeus simply declivous; labrum short, transverse, vertical and medianly concave ; left mandible crossed dorsal to right ; ventral surface of head very flat between the eyes ; cervicum finely alutaceous.

Maxillary palpi four-segmented ; first minute, cylindrical ; second arcuate-pedunculate, apically as wide as third ; third short, triangular from lateral face, with rounded external and angulate internal face ;

fourth longer than first three united, one-half wider than third, internal face with elongate-oval palpal sulcus which extends from apex to basal fourth, with an oblique palpal cone set near apex in sulcus.

Antennae eleven-segmented, normal ; antennae 0.90 mm. long ; segment I elongate-subcylindrical ; II slightly narrower, subquadrate ; III-VIII subquadrate, smaller ; IX and X transverse, trapezoidal, gradually larger ; XI as long as the three preceding segments united, truncate at base, rounded at apex.

Pronotum with three very large, free, pubescent foveae.

Each elytron with two basal foveae, the inner at origin of entire sutural stria, the outer at origin of a dorsal impression one-third of elytral length ; flank unmodified (Pl. I, 5) .

Abdomen with five simple tergites in a length ratio of 5.5/3.8/2/1.8/2 with the first four strongly margined ; fifth transversely subtrapezoidal with apical margin slightly concave to invest slightly convex apical margin of sixth sternite when aedeagus is not exerted.

Six simple sternites in a length ratio of 1.5/2.5/1.5/1/0.5/0.8 with the aedeagus partially exerted, establishing sex. The metasternum is strongly tuberculoid on either side of a median sulcus. Posterior coxae separated by slightly more than one-half the median metasternal length. Legs macrosceline, simple; posterior tibiae each with a thick, subtruncate, basally angulate spur of stout setae at apex.

Described on a single male (the type) taken by Henry Dybas at Tezonapa, Veracruz on August 8, 1941. *Prostatus* is a member of Group IX, and is near *aztekus*. From *aztekus* it is separated by two features : *aztekus* has the eleventh antennal segment very long, as long as the five preceding segments united, and the antennal tubercles are close together and separated by a relatively deep sulcus with subvertical walls.

ZOÖGEOGRAPHIC CONSIDERATIONS

As will be seen presently, the zoögeography of Mexican Pselaphidae is almost wholly unknown and our purpose, at this time, is to summarize available information and suggest a few of the many fascinating problems awaiting solution. To begin with, the fauna must be listed. This is attempted in Table I, although many species are known only from their original description as coming from "Mexico," or "Yucatan" of the last century.

Table I

FARONINI

1. *Megarafonus fundus* new species Las Vigas, Veracruz, 5500 ft.

PYXIDICERINI

2. *Bythinoplectus denticomis* Raffray Mexico

JUBININI

3. *Sebaga denticollis* (Schaufuss) Mexico
4. *S. lamellata* Raffray Mexico
5. *Jubus punctatus* (Sharp) Acapulco, Guerrero
6. *J. gracilicomis* Raffray Mexico ("Chimbo" ?)
7. *Balega dentata* Raffray Mexico
8. *Stratus ursinus* Schaufuss Teapa, Tabasco; Yucatan

EUPLECTINI

9. *Allobrox dampfi* Fletcher Mexico, D. F., 6600 ft.
10. *Fletcherexius macrodactylus* (Fletcher) Mexico, D. F., 6600 ft.
11. *Rhexidius gerhardi* new species Las Vigas, Veracruz
12. *Rhexius sharpi* new species Tamazunchale, San Louis Potosi
13. *Rhinoscepsis dybasi* Park San Juan, Veracruz
14. *Thesium brevicollis* (Raffray) Mexico
15. *T. clavatus* (Raffray) Mexico
16. *T. sharpi* (Raffray) Mexico
17. *T. paraobscurus* new species Tezonapa, Veracruz
18. *Mexiplectus emersoni* new species Huichihuyan, San Louis Potosi
19. *Euplectus guatemalenus* Sharp Huichihuyan, San Louis Potosi
20. *E. mexicanus* new species El Fortin, Veracruz, 3500 ft.
21. *Trimiopsis femoralis* Sharp Tezonapa, Veracruz
22. *Tomoplectus cordicollis* Raffray San Juan, Veracruz
23. *Actium caviceps* Raffray Mexico
24. *Actinoma obesum* Raffray Mexico
25. *Pseudotrimium microcephalum* Raffray Mexico
26. *Melba* (*Perimelba*) *minuta* (Sharp) El Fortin, Veracruz, 3500 ft.
27. *Melba* (*Perimelba*) *granulosa* new species Victoria, Tamaulipas
28. *Melba* (*Perimelba*) *kentra* new species Tezonapa, Veracruz
29. *Melba* (*Perimelba*) *montuosa* new species Las Vigas, Veracruz 5500 ft.
30. *Allotrimium michoacanensis* new species Zamora, Michoacan

BRACHYGLUTINI

31. *Eupsenius gibbicollis* (Raffray) Mexico
32. *E. grouvellei* (Raffray) Mexico
33. *E. mexicanus* (Raffray) Mexico

34. *Reichenbachia grouvellei* Raffray Mexico
35. *R. pubescens* Schaufuss Mexico
36. *R. irrita* Raffray Mexico
37. *R. luteola* Raffray Mexico
38. *R. parviceps* (Sharp) Cordoba, Veracruz
39. *R. falsa* Raffray Yucatan
40. *R. sarcinaria* (Schaufuss) Mexico
41. *R. mexicana* Raffray Mexico
42. *R. sallaei* (Sharp) Cordoba, Veracruz
43. *R. latipes* Fletcher Veracruz, Veracruz
44. *R. appendiculata* Raffray Mexico
45. *R. bifoveata* Fletcher Veracruz, Veracruz
46. *R. celata* (Sharp) Jalapa, Veracruz
47. *R. obnubila* Raffray Yucatan
48. *R. carinifer* Fletcher Veracruz, Veracruz
49. *R. biocellata* (Schaufuss) Mexico
50. *R. impunctata* (Schaufuss) Mexico
51. *Bunoderus carinicolis* Raffray Mexico
52. *Xybarida pusilla* (Schaufuss) Yucatan
53. *Scalenarthrus subcarinatus* Raffray Yucatan
54. *S. obliquus* Raffray Guanajuato
55. *S. adparatus* (Schaufuss) Yucatan
56. *S. cavicornis* (Raffray) Mexico
57. *S. denticornis* (Schaufuss) Mexico
58. *S. inflatus* Fletcher Veracruz, Veracruz
59. *S. separabilis* (Schaufuss) Yucatan
60. *S. diplorachis* new species Cordoba, Veracruz at 2000 ft; Tierra Blanca, Veracruz
61. *Pselaptus cristatus* (Schaufuss) Mexico
62. *Drasinus binodulus* Raffray Mexico
63. *D. hirsutus* Fletcher Veracruz, Veracruz
64. *Decarthron fractifrons* Fletcher Veracruz, Veracruz
65. *D. cochlearifer* (Schaufuss) Cordoba and Jalapa, Veracruz
66. *D. soror* (Schaufuss) Mexico
67. *D. arthriticum* Raffray Durango
68. *D. curticorne* (Schaufuss) Yucatan
69. *D. punctatum* Fletcher Veracruz, Veracruz
70. *D. quadraticeps* Raffray Cuautla, Morelos
71. *D. quadrifoveatum* Fletcher Veracruz, Veracruz
72. *D. rugulosum* Fletcher Veracruz, Veracruz
73. *D. squamosum* Fletcher Veracruz, Veracruz
74. *D. denticulatum* Fletcher Veracruz, Veracruz
75. *D. schmitti* Raffray Cuernavaca, Morelos
76. *D. vulneratum* Raffray Mexico
77. *D. restitutum* Sharp Cordoba, Veracruz
78. *D. fallaciosum* Sharp Cordoba, Veracruz
79. *D. planifrons* Raffray Yucatan
80. *D. suturale* (Schaufuss) Mexico
81. *D. tropicum* Fletcher Villa Juarez, Tamaulipas; Veracruz, Veracruz
82. *D. gracilicorne* Fletcher Veracruz, Veracruz
83. *D. denticorne* (Schaufuss) Yucatan
84. *Euteleia nodosa* Raffray Mexico

BATRISINI

85. *Arthmius crassicornis* Raffray Mexico
86. *A. plicicollis* Reitter Orizaba, Veracruz
87. *A. bubalus* Raffray Mexico
88. *A. curvicornis* (Schaufuss) Cordoba, Veracruz and Yucatan
89. *A. geniculatus* (Sharp) Jalapa, Veracruz and Tamazunchale, San
Louis Potosi
90. *A. neotropicus* new species Chapulhuacan, Hidalgo, 4000 ft.
91. *A. pedestrianus* Raffray Durango .
92. *A. scaphiger* (Sharp) Jalapa, Veracruz
93. *A. asymmetricus* new species Tamazunchale, San Louis Potosi
94. *A. simplicior* Raffray Yucatan
95. *A. subfuscus* Fletcher Jalapa, Veracruz
96. *A. quadripunctatus* (Schaufuss) Jalapa, Veracruz and Yucatan
- 97.
98. *A. punctatus* Raffray Mexico
99. *A. plurispinosus* new species Penuela and Cordoba, Veracruz
100. *Euphalepsus globipennis* Reitter San Marcos, Mexico (State?)
101. *E. myrmecocolus* Park Las Vigas, Veracruz

TYCHINI

102. *Dalmodes rybaxoides* Reitter Mexico
103. *Bythinophysis schaufussi* (Raffray) Teapa, Tabasco
104. *B. venustulus* (Schaufuss) Teapa, Tabasco
105. *Buris brunneus brunneus* Fletcher Cordoba and Veracruz, Veracruz
and Huichihuyan and Tamazunchale, San Louis Potosi
106. *B. brunneus fletcheri* new variety Cordoba, Veracruz and Tamazun-
chale, San Louis Potosi
107. *B. brevicollis brevicollis* (Sharp) Cordoba, Penuela and Tezonapa,
Veracruz; Huichihuyan and Tamazunchale, San Louis Potosi
108. *B. brevicollis sharpi* new variety Huichihuyan and Tamazunchale,
San Louis Potosi
109. *B. mexicanus* new species Tamazunchale, San Louis Potosi
110. *Dalmophysis cylindrica* Raffray Mexico
111. *Batrybraxis inflexa* Schaufus Mexico

GONIACERINI

112. *Listriophorus felix* Schaufuss Mexico

HOLOZODINI

113. *Caccoplectus celatus* Sharp Mexico

CTENISTINI

114. *Ctenisis dispar* (Sharp) Cordoba, Veracruz and Sabinas and Hidalgo,
Nuevo Leon
115. *C. raffrayi* Casey Mexico
116. *Pilopius major* Mann San Miguel, Hidalgo
117. *Ctenisodes laticeps* Raffray Montemorelos, Nuevo Leon

TYRINI

118. *Hamotus (Hamotus) tibialis* Raffray Mexico
119. *H. (Hamotus) aztekus* Park Tezonapa, Tuxpango and Cordoba, Vera-
cruz
120. *H. (Hamotus) prostatus* new species Tezonapa, Veracruz
121. *H. (Hamotus) singularis* Reitter Cordoba, Veracruz
122. *H. (Hamotus) ursulus* Schaufuss Tezonapa and Penuela, Veracruz;
Teapa, Tabasco; Yucatan ?

123. *H. (Hamotoides) electrae* Park San Juan, Veracruz
124. *H. (Hamotoides) monachus* Reitter Yucatan
125. *H. (Hamotoides) nodicollis* Raffray Mexico
126. *H. (Hamotoides) tritonus* Reitter Jalapa, Veracruz
127. *H. (Hamotoides) commodus* Schaufuss Teapa, Tabasco and Yucatan
128. *H. (Hamotoides) suturalis* Schaufuss Teapa, Tabasco and Yucatan
129. *H. (Hamotoides) veracruzensis veracruzensis* Park Cordoba, San Juan,
Penuela and Tezonapa, Veracruz

CLAVIGERINI

130. *Fustiger veracruzensis* Park Las Vigas, Veracruz, 5500 ft.

This fauna can be better appreciated when contrasted with the larger faunas, of which it is a part (Table II).

Table II

| Region and Subregion | Tribes | Genera | Species, Subspecies, and Varieties |
|----------------------|--------|--------|---------------------------------------|
| Nearctic | 11 | 65 | 384 |
| Neotropical | 17 | 145 | 913 |
| Central American | | | (275) |
| Mexico | (11) | (44) | (130) |
| Antillean | | | (61) |
| South American | | | (651) |

In this table the three neotropical subregions add to 987 species, but this is a consequence of a small amount of overlap in the range of species common to two subregions ; the figure 913 species represents the overall figure, corrected for this overlap.

From this second tabulation we find Mexico with about one-half of the species known from the Central American subregion, and about one-seventh of the total fauna of the Neotropical Region. This seemingly large fauna is merely superficially impressive, and attests to the general lack of information about neotropical pselaphids as a whole. Such a situation is emphasized in Table III where the Mexican fauna is broken down by political divisions.

This third table indicates the nature of the difficulty, namely too little collecting in general, and insufficient data concerning the Pacific Slope in particular. Thus about one-fourth of the species are known as coming from "Mexico," without further information concerning collecting locality ; about 9 species have a definite altitude record, although in a country with as much relief as Mexico, montane zonation becomes of primary importance ; about 11 species are known from more

than one state, and but one from three states. It is quite impossible, therefore, to discuss Mexico in terms of faunal provinces at this time. This becomes patent when it is realized that Veracruz holds 38 per cent of all species known from Mexico, and the region south of the Tropic of Cancer bordering the Gulf of Mexico holds 75 out of 98 species with known state records.

Just how many species of Mexican pselaphids there are is not known. In a previous paper (Park, 1942) an attempt was made to determine the theoretical *maximum* number of species in the Neotropical Region as a whole. This maximum fell between 7000 and 14,000 species. If the *minimum* species be set at the present number described, that is, about 1000, then we have a possible range of from 1000 to the lower

Table III

| <i>State</i> | <i>Species and Intraspecific Categories</i> |
|------------------|---|
| Durango | 2 |
| Guanajuato | 1 |
| Guerrero | 1 |
| Hidalgo | 2 |
| Mexico, D. F. | 2 |
| Michoacán | 1 |
| Morelos | 2 |
| Nuevo Leon | 2 |
| San Louis Potosi | 10 |
| Tabasco | 6 |
| Tamaulipas | 3 |
| Veracruz | 50 |
| Yucatan | 16 |

limit of the maximum, 7000, as a basis for estimating the Mexican portion of the neotropics. This would give Mexico, south of the Tropic of Cancer, about 126 *minimum* to 882 *maximum* neotropical species. The true situation lies at some point between these limits.

It is possible to suggest this intralimital number of species by a different method. The collection of pselaphids analyzed in the present report consisted of 24 species and varieties, of which 18 were new. Of these latter 17 were taken below 6000 feet, on the Atlantic Slope, and one from the Pacific Slope. This is a 4:1 ratio of new to previously known species, and would give a neotropical total of something like 500 species. This is undoubtedly low since the Pacific Slope fauna is virtually unknown, and there are no data to show that the Atlantic and Pacific faunas are more or less the same. In fact the isolation of

these two strips by mountains (Pl. III) suggests that this is not the case as a general rule, and hence this estimate is probably too conservative. The Mexican pselaphids probably number between 500 and 700 species, and there is accumulative evidence that this would include Guatemala, since the Neotropical Region of these two countries appears to be inhabited by the same zoögeographic fauna.

On the other hand, some of what we are now terming species may be portions of the same interbreeding population, and are either morphologically recognizable points on the curve of normal variation, appearing through the range of the species (varieties), or appearing in a geographically or ecologically limited portion of the range (subspecies). In either case this would result in reduction of the number of species and increase in the number of known varieties and subspecies. This cannot be decided *ad hoc*; the solution must await the day when these little betties can be interbred under controlled conditions, and this is by no means the least of the important problems awaiting future research.

Turning to broader aspects of the distributional picture in Mexico, a diagrammatic map has been prepared (Pl. III) to facilitate this discussion. In Table IV the Mexican pselaphid fauna is analyzed in terms of the larger faunal areas.

From this table it will be seen that Mexico has 44 genera of pselaphids. This works out at about 2.2 per cent per genus if the total genera are allowed to equal 100 per cent, without regard to the size of the genus. The next step should summarize the species in terms of generic percentages, and this is done in Table V, in which the well

with the Mexican fauna. This comparison is of interest since the former lies astride the major dispersal route between the South American and Central American subregions of the neotropics, while the latter lies at the extreme northern limit of the Neotropical Region and in geographic contact with the Nearctic Region. In this table preponderance is taken as a measure of affinity, and is artificially established by more than 50 per cent of the species of a given genus occurring in one subregion.

On examination of the right hand column it will be seen that Mexico is roughly three-fourths neotropical and one-fourth composed of genera which are not tropical. Of this last fourth, three genera (*Euplectus*, *Reichenbachia*, *Fustiger*) have wide distribution beyond the Western Hemisphere, four genera (*Rhexidius*, *Rhexius*, *Actium*, *Pilopius*) are preponderantly nearctic, and two genera (*Megarafonus*, *Caccoplectus*) are evenly divided between the nearctic and the neotropical areas. This 20-25 per cent is in strong contrast with the single genus (*Reichen-*

Table IV. Faunal Affinities of Mexico.

| Mexican Genera | Genus Endemic | Species, Subspecies, Varieties in: NEOTROPICAL REGION | | | Varieties in: NEARCTIC REGION |
|----------------------|------------------|--|--------------------------------|------------------------|----------------------------------|
| | | Central American Subregion | South American Subregion | Antillean Subregion | |
| <i>Megarafonus</i> | no | 1 | 0 | 0 | |
| <i>Bythinophysis</i> | no | 1 | 3 | 2 | 0 |
| <i>Sebaga</i> | | 5 | 2 | | 0 |
| <i>Jubus</i> | no | 5 | 42 | 2 | 0 |
| <i>Balega</i> | no | 1 | | 1 | 0 |
| <i>Stratus</i> | no | 2 | 0 | 0 | 0 |
| <i>Allobrox</i> | yes | 1 | 0 | | 0 |
| <i>Fletcherexius</i> | yes | 1 | 0 | 0 | 0 |
| <i>Rhexidius</i> | no | 1 | 0 | 0 | |
| <i>Rhexius</i> | no | 2 | 2 | 0 | 8 |
| <i>Rhinoscepsis</i> | no | 1 | 5 | 0 | 1 |
| <i>Thesium</i> | no | 7 | 1 | 0 | 2 |
| <i>Mexiplectus</i> | yes | 1 | 0 | | 0 |
| <i>Euplectus</i> | no | 3 | 2 | 3 | 27 |
| <i>Trimopiopsis</i> | no | 3 | 1 | | 0 |
| <i>Tomoplectus</i> | yes | 1 | 0 | 0 | 0 |
| <i>Actium</i> | no | 1 | 2 | 0 | 14 |
| <i>Actinoma</i> | yes | 1 | | 0 | 0 |
| <i>Pseudotrimium</i> | yes | 1 | 0 | 0 | 0 |
| <i>Melba</i> | no | 5 | 4 | 12 | 11 |
| <i>Allotrimium</i> | yes | 1 | | 0 | 0 |
| <i>Eupsenius</i> | no | 3 | 1 | 3 | 2 |
| <i>Reichenbachia</i> | no | 31 | 42 | 6 | 60 |
| <i>Bunoderus</i> | no | 1 | 1 | 0 | 0 |
| <i>Xybarida</i> | | 2 | 2 | 0 | |
| <i>Scalenarthrus</i> | no | 12 | 3 | 3 | 1 |
| <i>Pselaptus</i> | no | 3 | 5 | 2 | |
| <i>Drasinus</i> | no | 3 | 1 | 0 | 0 |
| <i>Decarthron</i> | no | 26 | 30 | 3 | 13 |
| <i>Euteleia</i> | no | 1 | 2 | 0 | 0 |
| <i>Arthmius</i> | no | 21 | 76 | 0 | 5 |
| <i>Euphalepsus</i> | no | 6 | 18 | 0 | 1 (?) |
| <i>Dalmodes</i> | 110 | 1 | 4 | 0 | |
| <i>Bythinophysis</i> | no | 2 | 3 | 1 | |
| <i>Buris</i> | no | 5 | 0 | | 0 |
| <i>Dalmophysis</i> | yes | 1 | 0 | 0 | 0 |
| <i>Batrybraxis</i> | no | 3 | 4 | 0 | |
| <i>Listriophorus</i> | yes | 1 | | 0 | 0 |
| <i>Caccoplectus</i> | no | 1 | 0 | 0 | |
| <i>Ctenisis</i> | no | 2 | 6 | 0 | 1 |
| <i>Pilopius</i> | no | 1 | 0(?) | 0 | 14 |
| <i>Ctenisodes</i> | yes | 1 | 0 | 0 | 0 |
| <i>Hamotus</i> | no | 26 | 62 | 1 | 1 |
| <i>Fustiger</i> | no | 6 | 11 | 3 | 3 |

bachia) which makes up the extra-neotropical element of the Panamanian Isthmus, and must mean that the Mexican fauna is much more terminally and exposed to invasion from the nearctic fauna, than is the Panamanian fauna. This is just what theory would expect, but the confirmation is none the less satisfying.

On the other hand, invasion from the United States is much lower (than expected if latitude is the only guide, and the obvious reason

available moisture, at or near the Tropic of Cancer. The latter (Pl. III) is seen as a zoögeographic limit between the Nearctic and Ne

would be limited northwards in Mexico by the deterioration of the rain forest. On the Atlantic Slope this seems well established, the neotropical pselaphids breaking off through southern Tamaulipas-central San Louis Potosi. The extent of the neotropical pselaphids on the Pacific Slope is wholly unknown since but one species (*Jubus punctatus*) is known with certainty from this entire region (Table I). This fixing of the Pacific Slope fauna is one of the more pressing pro

Table V. Faunal Comparison of Panamanian Isthmus and Mexico in Per Cent.

| <i>Generic Preponderance</i> | <i>Barro Colorado Island, P. C. Z.</i> | <i>Mexico</i> |
|--|--|---------------|
| Extra-Neotropical | 3 | 20 |
| Extra-American | 3 | 7 |
| Nearctic | 0 | 9 |
| Nearctic-Neotropical | 0 | 4 |
| Neotropical | 97 | 77 |
| General | 16 | 22 |
| Central American (exclusive of endemic genera) | 16 | 15 |
| Endemic Genera | 39 | 22 |
| South American | 26 | 18 |
| Antillean | 0 | 0 |

As seen in Table V, the Mexican pselaphids are significantly less neotropical (77 per cent) than the Panamanian pselaphids (97 per cent). Both faunas have about the same proportion of Central American genera. The chief difference is that Mexico has fewer endemic genera and fewer South American genera. Of course these are preliminary remarks about a relatively unknown area and it should be pointed out that more material may, or may not, bear out these ideas.

Both areas show a lack of Antillean genera at the latest writing. If this is a true situation, it must mean that either Antillean elements have not been distributed (through former land connections or floating rafts) , or if such, have penetrated to Central America they have been unable to establish themselves.

In this connection *Arthmius* is interesting. It will be noted (Table IV) that no *Arthmius* species is known from the Antillean subregion. This exclusively American genus, of about 102 species known, appears to have its center of dispersal in the Amazon drainage of Brazil, and to have spread northward through Central America (21 species) and, with difficulty, into the United States (5 species) . The species, then, are numerous and their absence from the Antilles, if real rather than assumed, is difficult to explain. One explanation bears on what has been said previously in regard to differential facet number in the sexes (*vide supra*) . Male *Arthmius* are common at lights at night and have a relatively high facet number, while females are very rare at lights at night and have a relatively low facet number. This applies to the few species specifically investigated for this point. Males may fly at night in search of females at the breeding period, and consequently the latter sex, if it is a poor flier, would not carry the species over a sea barrier, whereas a male might occasionally cross the latter.

Such an hypothesis would explain the dispersal pattern of *Arthmius*, but has too many exceptions for general application. Thus the large genus *Hamotus* does not have this significant sex differential in facet number but has about the same dispersal pattern, namely 62 species in South America, 26 species in Central America, one species in the Antilles, and one species in peninsular Florida. On the other hand, *Jubus* has a pronounced sex differential in facet number, some females being almost devoid of eyes, and has 42 species in South America, 5 species in Central America and 2 species in the Antilles. Therefore, we must await accumulation of data with as much patience as possible.

Returning to Mexico, and the genus *Arthmius*, this pronounced night flight of males and lack of it in females aids us in visualizing the altitude problem in this interesting country. A glance at the map (Pl. III) shows three very general areas : an Atlantic Coastal, a Pacific Coastal, and a Central Plateau. This latter is only slightly better known than the Pacific Coastal area, and ranges from 3000 to 9000 elevation and is more or less fringed and dissected by mountains which rise to greater altitudes. This fringed plateau would appear to isolate the three areas noted. Of course nothing is known of exact zonation of pselaphids in Mexico, and vertical transects based on quantitative collecting of Pselaphidae at known altitudes is another pressing problem in this country. Until demonstrated to the contrary it is thought that each of

these three general areas holds a taxonomically distinct pselaphid fauna since, on the basis of relief isolation, with its concomitant change in climate, vegetation and floor mold, no extensive break would appear until southern Nicaragua—northern Costa Rica. The total lack of fossil pselaphids in the neotropics thus far does not aid our speculation ; we are unable to take full advantage of the information on the previous geological history of the Antilles, Central America and South America.

The three irregularly longitudinal areas are each open to penetration from the south-southeast, but appear to be closed to inter-provincial dispersal by the altitude complex. This exposure to neotropical elements is partially verified by the generic composition of Mexican pselaphids (Tables IV and V) . On the other hand there is a possible exception to inter-provincial isolation in the Isthmus of Tehuantepec. The Central Plateau is broken in this latter region (Pl. III) and progressive cut-back erosion of the apposed stream systems, with subsequent penetration of rain forest, may allow the Atlantic and Pacific Coastal pselaphid faunas to intermingle. Here again exact data are lacking.

ABSTRACT

The genera *Rhexidius* and *Megarafonus*, known hitherto only from the Nearctic, are reported from Mexico.

The general *Melba* and *Euplectus*, known from the Nearctic and Neotropical Regions, but hitherto unknown from Mexico, are recorded for that country.

Five species of neotropical pselaphids, not reported since their description some fifty years ago, are recorded from Mexico. These are : *Euplectus guatemalensis* Sharp, *Trimniopsis femoralis* Sharp, *Tomoplectus cordicollis* Raffray, *Melba minuta* (Sharp) , *Arthmius geniculatus* (Sharp).

Two new genera, one new subgenus, sixteen new species and two new varieties of Mexican Pselaphidae are described, and the genus *Buris* emended. These additions are : *Megarafonus fundus* n.sp.; *Mexiplectus emersoni* n.gen.et n.sp.; *Rhexidius gerhardi* n.sp ; *Thesium parobscurus* n.sp.; *Euplectus mexicanus* n.sp.; *Melba* (*Perimelba* n.subgen.) *granulosa* n.sp., *kentra* n.sp., *montuosa* n.sp. ; *Allotrimium michoacanensis* n.gen.et n.sp.; *Scalenarthrus diplorachis* n.sp. ; *Arthmius neotropicus* n.sp.; *Arthmius asymmetricus* n.sp.; *Arthmius plurispinosus* n.sp.; *Buris brevicollis sharpi* n.var. ; *Buris brunneus fletcheri* n.var.; *Buris mexicanus* n.sp.; *Hamotus* (*Hamotus*) *prostatus* n.sp. ; *Rhexius sharpi* n.sp.

New keys to the species of Central American *Perimelba*, Group II of *Scalenarthrus*, Group III of *Arthmius*, and *Buris* are presented.

Preliminary zoögeographic considerations of Mexican Pselaphidae and a list of the Mexican species are undertaken.

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PLATE I

INTRAfamily VARIATION IN ELYTRAL FLANK IN PSELAPHIDAE

1. Oblique pleural Carina, as in *Melba* (*Melba*). After Park, 1942.
2. Parallel pleural carina, as in *Melba* (*Perimelba*), *Trimiopsis*, *Buris* in part.
3. Parallel pleural sulcus, as in *Allotrimium*.
4. Subhumeral fovea at origin of either a pleural carina or sulcus, as in *Actium*, *Euplectus*, *Thesium*, *Mexiplectus*, *Tomoplectus*, *Allobrox*, *Buris* in part, *Dalmoburis*.
5. Unmodified, as in *Arthmius*, or *Scalenarthrus*, or *Hamotus*.

MISCELLANEOUS PSELAPHID STRUCTURES

6. Posterior tibial spurs and tarsus of *Scalenarthrus diplorachis*.
7. Male antenna of *Arthmius geniculatus*.
8. First nine antennomeres of male antenna of *Arthmius pedestrianus*.
In part after Raffray, 1904.
9. Male antenna of *Arthmius neotropicus*.
10. Male antenna of *Arthmius asymmetricus*.
11. Ventral aspect of prothorax of *Mexiplectus emersoni*.

PLATE I

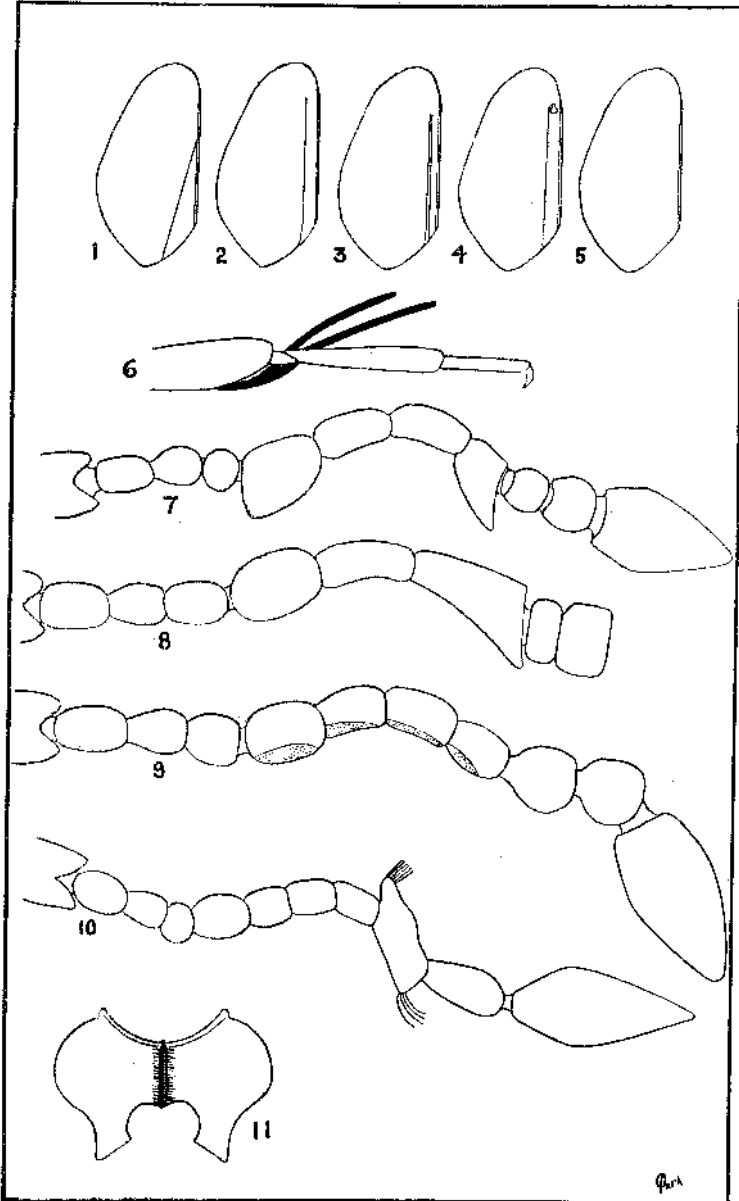


PLATE II

MISCELLANEOUS PSELAPHID STRUCTURES

1. Middle *leg* of male *Arthmius plurispinosus*.
2. Male antenna of *Buris brunneus brunneus*.
3. Last five antennomeres of male *Buris brunneus fleteheri*.
4. Normal variation in apical spine of *Buris brevicollis*. Triangles denote females, spheres denote males.
5. Three variations of apical spine of *Buris brevicollis*.
6. Posterior tibia of female *Buris brevicollis*.
7. Posterior tibia of male *Buris brevicollis*; *a* and *b* two variations of cusp at basal third.
8. Fifth and sixth sternites of male *Arthmius plurispinosus*. In this and the next three figures the sixth sternite is shown in solid color, and concavities are indicated by stippled areas.
9. Fifth and sixth sternites of male *Arthmius geniculatus*.
10. Fifth and sixth sternites of male *Arthmius neotropicus*.
11. Fifth and sixth sternites of male *Arthmius asymmetricus*.

PLATE II

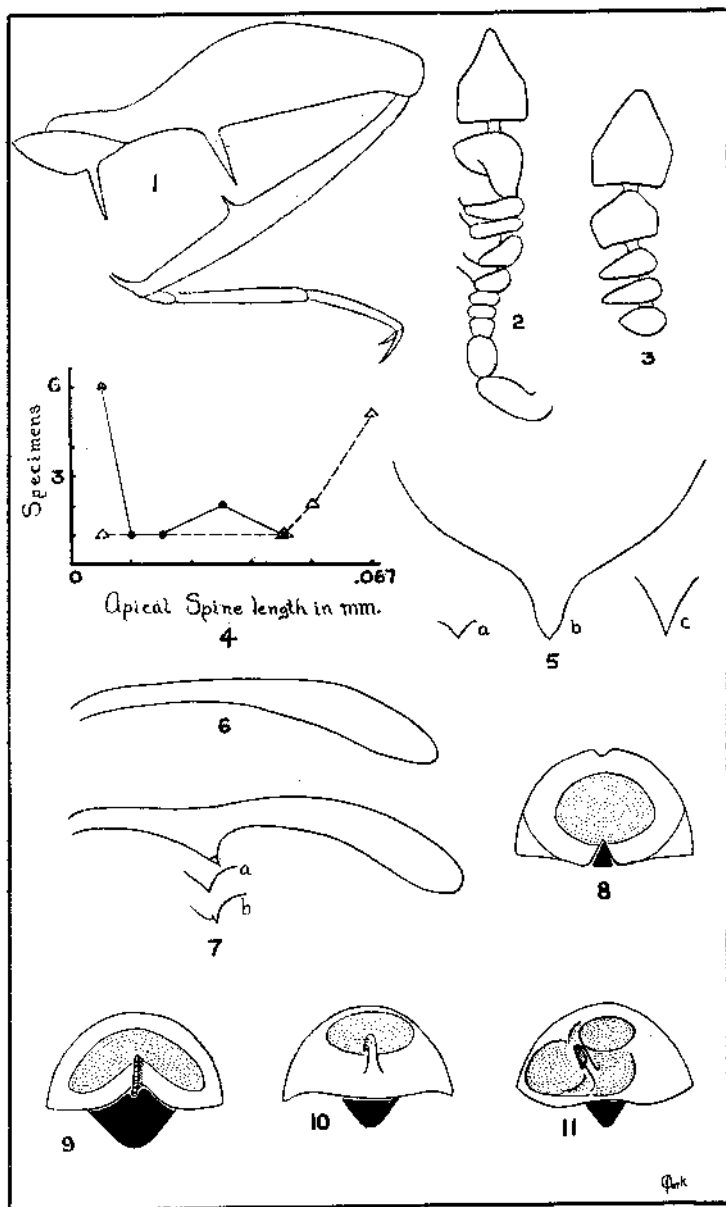
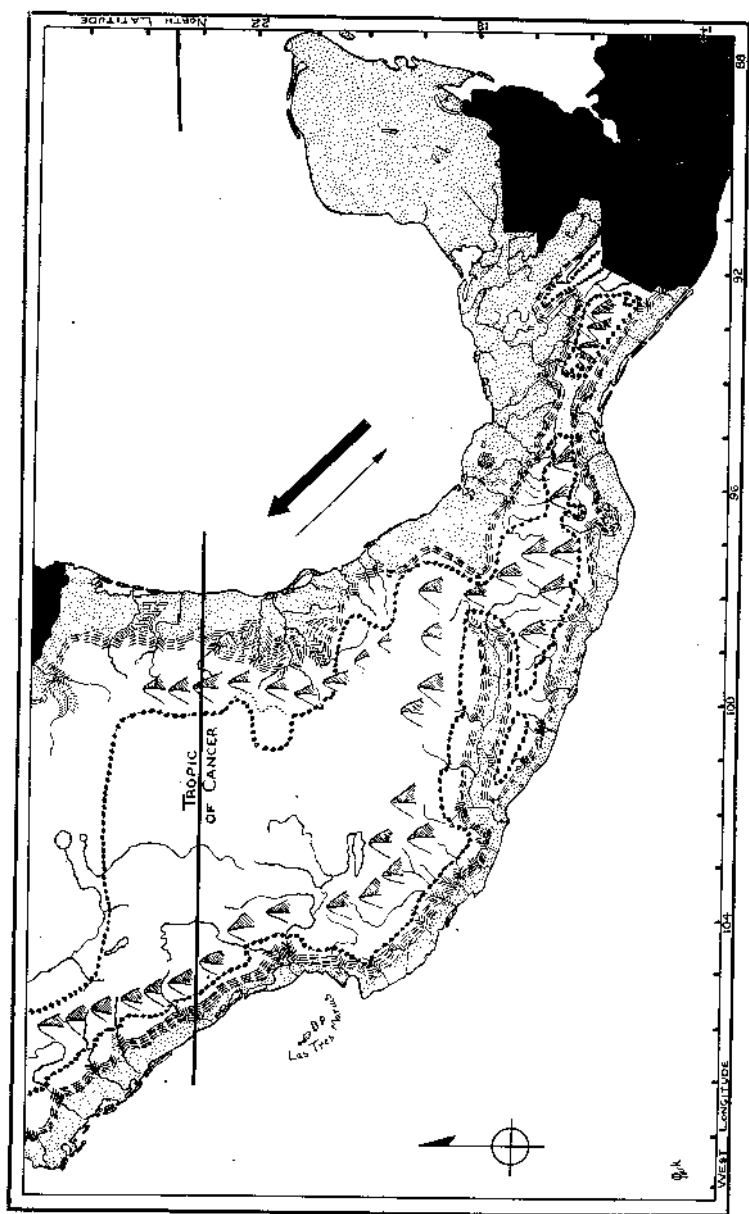


PLATE III

DIAGRAMMATIC MAP OF MEXICO

Tropic of Cancer shown as a straight bar, indicating approximate northern boundary of neotropical Pselaphidae. General mountain masses indicated as pyramids. Central Plateau approximately delimited by heavy dotted line (5000 to 6000 foot contour south of the Tropic of Cancer), and flanked on either side by the Atlantic and Pacific Slope (indicated by stippled areas, from sea level to 3000 feet). Theoretically possible dispersal route between these two coastal areas at Isthmus of Tehuantepec discussed in text. Two arrows indicate relative generic composition of Mexican fauna: thin arrow, the Nearctic pselaphid influence; thick arrow, the Neotropical pselaphid influence (see Table V). Scale: 1 inch—250 miles.

PLATE III



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